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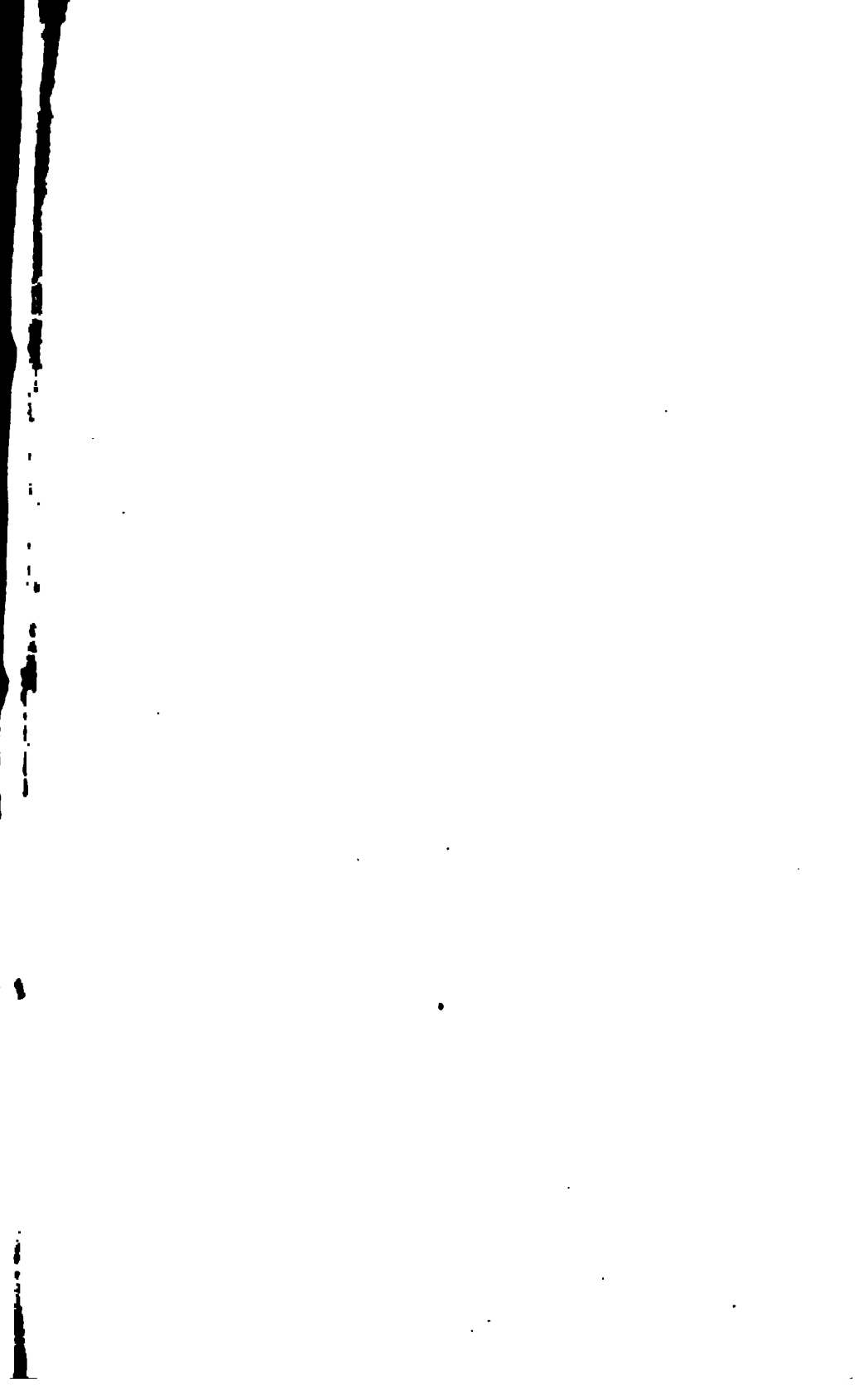
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AGRICULTURE APPROPRIATION BILL

HEARINGS

BEFORE THE

COMMITTEE ON AGRICULTURE

HOUSE OF REPRESENTATIVES

SIXTY-SIXTH CONGRESS

SECOND SESSION

WITH REPORT No. 596

ON THE

AGRICULTURE APPROPRIATION BILL, 1921



**WASHINGTON
GOVERNMENT PRINTING OFFICE
1920**

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COMMITTEE ON AGRICULTURE.

HOUSE OF REPRESENTATIVES.

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SYDNEY ANDERSON, Minnesota.

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JUN 22 1923



AGRICULTURE APPROPRIATION BILL.

COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Tuesday, December 9, 1919.

The committee met at 10.30 o'clock a. m., Hon. Gilbert N. Haugen (chairman) presiding.

The CHAIRMAN. The committee will come to order. I have called the committee together this morning to consider the estimates of appropriations for the Department of Agriculture required for the service of the fiscal year ending June 30, 1921, submitted by the Secretary. Full and open hearings will be held on the estimates during which we will have before the committee representatives and chiefs of the various bureaus of the department, as well as others interested in the various items who may wish to appear and be heard. The policy will be to scrutinize each item in the estimates most carefully with a view of practicing strictest economy, but of course allowing all just increases which will tend to promote agriculture.

We have with us this morning Mr. Harrison, assistant to the Secretary, from whom we will be pleased to hear first.

SUMMARY OF ESTIMATES.

STATEMENT OF MR. F. R. HARRISON, ASSISTANT TO THE SECRETARY, DEPARTMENT OF AGRICULTURE.

Mr. JONES. May I ask Mr. Harrison just what official position he has?

Mr. HARRISON. Assistant to the Secretary.

Mr. JONES. Of the Department of Agriculture?

Mr. HARRISON. Yes, sir.

Mr. JONES. What are the initials?

Mr. HARRISON. F. R.

Mr. TINCHER. What estimates are you going to discuss?

Mr. HARRISON. The regular annual estimates of the department. I will merely make a general statement to the committee about the estimates as a whole. The estimates for the fiscal year 1921, which you are about to consider, aggregate \$37,528,102, compared with \$33,899,761, the amount carried in the appropriation act for 1920; that is, the current fiscal year. They involve an apparent increase of \$3,628,341. Taking into account, however, the fact that \$121,229 is merely transferred from other acts (the sundry civil and the wheat-price guaranty acts), the net increase is only \$3,507,112. It should be pointed out, also, that the item of \$1,000,000 for fighting and preventing forest fires (an increase of \$850,000 over the present

appropriation), the item of \$1,000,000 for combating foot-and-mouth disease, and the item of \$240,000 for the eradication of the pink bollworm of cotton, are simply insurance funds and will be used only in case of necessity. The committee will be interested to know that, according to the best estimates I can secure—

Mr. JONES. Are these items increases over the last?

Mr. HARRISON. The last items to which I referred are not increases, except the appropriation for fighting and preventing of forest fires, which involves an increase of \$850,000.

Mr. JONES. Over your request for that same purpose last time?

Mr. HARRISON. Yes, sir. The committee will be interested to know that, according to the best estimates I can secure, the receipts from the various activities of the department, including timber sales, grazing privileges, water-power permits, and the like, will amount, during the fiscal year 1921, to approximately \$6,925,000, compared with \$6,885,000 during the current year.

The amount recommended by the bureaus totaled \$41,953,483, an increase of \$8,053,722 over the appropriation for 1920. After giving careful consideration to each and every item, and bearing in mind the financial situation of the Nation, the Secretary, as you will note, made reductions in the bureaus' estimates aggregating \$4,425,381. He is firmly convinced that the increases approved by him are reasonable, and that they are necessary for the effective prosecution of the work of the department during the next fiscal year.

I have prepared the usual statement summarizing the estimates, which, with your approval, I shall be glad to insert in the record.

The CHAIRMAN. Does that give the estimates in detail of the bureaus?

Mr. HARRISON. It gives the increases by the individual items. We inserted a similar statement last year, as well as in preceding years.

I might refer briefly to a few of the larger items. The Secretary is renewing the recommendation, which he made at the last session of Congress, that the name of the Office of Farm Management be changed to "Bureau of Farm Management and Farm Economics," that it be placed on the same basis as other bureaus in the department, and that an appropriation of approximately \$612,000 which represents an increase of about \$300,000 over last year, be provided for the conduct, on an adequate scale, of the enlarged program for studies in the field of farm management and farm economics, including the cost of producing agricultural products, as outlined by the reorganization committee.

A plan for the improvement and extension of the crop and live stock reporting service in the Bureau of Crop Estimates, calling for an increase of \$550,000, has been developed and is incorporated in these estimates.

We are asking for additional funds for administering and protecting the national forests, for investigating important forest problems—

Mr. McLAUGHLIN of Michigan. Before you leave the other matter: Has the plan been set out and the arguments in favor of it in the print?

Mr. HARRISON. It is set out in full in the estimates under the Bureau of Crop Estimates. As I was about to say, we are asking also for additional funds for protecting and administering the national

forests, for investigating important forest problems, and for aiding private owners in bringing about the practice of good forestry on their holdings—

Mr. JONES. Is that Mr. Graves's subject?

Mr. HARRISON. Yes, sir; we are also asking for additional funds for the market news and food products inspection services in the Bureau of Markets. In order to secure greater coordination in the publication and informational work of the department, we are proposing to transfer the office of information and the office of exhibits to the division of publications, consolidating all these services under the supervision of the chief of that bureau.

We are suggesting increases for the development of other important lines of work in the various bureaus. I think I ought to call the attention of the committee to the fact that, during the war, practically no provision was made for the extension of research activities other than those which had a direct bearing on war problems. Many of the increases which we have included in the estimates, therefore, contemplate merely the prosecution of work which should have been, and probably would have been, undertaken some time ago but for the unusual conditions growing out of the war. Other increases are made necessary by reason of the large advances which have occurred in the cost of labor, materials, supplies, transportation, and the like, and do not contemplate any increase in the work.

In view of the fact that a joint congressional commission is actively engaged upon the task of reclassifying the salaries of Government employees in the city of Washington and expects to make its report to Congress in the near future, it was decided to make no provision in these estimates for increases or readjustments in compensation. We have included some new places, however, and the usual transfers have been made from the lump funds to the statutory rolls. I may add that one of the most pressing problems we have before us now is that of securing and retaining an adequate, efficient, and contented personnel, but we are hopeful that some relief will come through the action of the joint commission. If it does not, we are certainly facing a further decided lowering of efficiency throughout the service.

If the committee has no objection, I would like to insert in the record a letter which the Secretary recently wrote to the Joint Commission on Reclassification of Salaries with reference, particularly, to the salaries of the chiefs of the bureaus in the department, emphasizing the fact that the present compensation is entirely out of proportion with the responsibilities involved. I think it would be interesting to the committee to have the Secretary's views about this matter.

The CHAIRMAN. Without objection, it is so ordered.
(The letter referred to follows):

OCTOBER 13, 1919.

HON. ANDRIEUS A. JONES,

Chairman Joint Commission on Reclassification of Salaries.

DEAR SENATOR JONES: In connection with the reclassification of salaries of Government employees, there is a matter which I imagine your commission has in mind but with reference to which I am taking the liberty of expressing my views. I refer to the status and compensation of such responsible officers of the department as the chiefs of the various bureaus. I shall not undertake to express any opinion at this time regarding the status and compensation of the rank and file of the employees of the Government.

I have been impressed for some time with the fact that democracy, if it is to succeed, must be willing to secure and retain in positions of marked governmental responsibility men of the highest ability, qualification, and experience. Many positions in the Government service involving the supervision of vast enterprises now have attached to them inadequate salaries. The Government is constantly losing men of the sort I have in mind and is compelled to satisfy itself with replacements of men who, in the judgment of executive officers, may not be thoroughly qualified for the tasks assigned to them. In this department I think the compensation attached to the position of chief of bureau should be increased. The minimum should not be lower than \$5,000 per annum and the maximum might well be placed at \$7,500, and should certainly not be less than \$6,500. At present the salaries of chiefs of bureaus, with one exception, range from \$3,500 to \$5,000 per annum. The latter figure is less than that now paid by many educational institutions to professors doing no administrative work or to deans of departments, including deans of departments in the agricultural colleges.

You realize, I am sure, what tremendous tasks such bureaus as those of Plant Industry, Animal Industry, Markets, Farm Management, Chemistry, Weather, Public Roads, the Forest Service, the Solicitor's Office, and others have in hand. When we consider the scope of their work and the responsibilities attaching to the position of chief, the present compensation seems singularly small. I shall simply give a few illustrations of the magnitude of the tasks involved. Take, for instance, the Forest Service. The chief of that service has under his jurisdiction all the national forests, embracing about 155,000,000 acres of land. The forests have in them one-fifth of the standing timber and involve timber sale operations on a great scale. They support approximately 11,000,000 animals grazing under special permit, giving rise to many important and difficult problems and touching the interests of many thousands of stockmen. Furthermore, the forests contain about 30 per cent of the water power of the Nation and 42 per cent of the water power of the West, and there is invested in water-power projects in or in connection with the forests something over \$300,000,000. There are also vast responsibilities involved in the various special uses that are made of the forests, as well as in fire protection and reforestation. All told, the Chief of the Forest Service has under his direction approximately 3,000 employees.

Similar facts obtain with reference to each of the other bureaus. The Bureau of Animal Industry, for example, is charged with the administration of many important laws, such as the meat-inspection act, the 28-hour act, and the animal quarantine acts, the direction of the forces engaged in eradicating such important animal diseases as hog cholera, Texas fever (cattle tick), scabies, tuberculosis, and the like, the promotion of better live-stock methods, and the betterment of the live-stock industry of the Nation as a whole. There are approximately 5,000 employees in this bureau.

The solicitor has many responsibilities. He now has under his direction about 45 lawyers and is the principal legal officer of the department in respect to the administration of about 35 important laws, including the Federal aid road act, the grain and cotton standards acts, the warehouse act, the food and drugs act, the meat-inspection act, the animal quarantine laws, the Weeks forestry act, and the laws relating to the national forests. He also advises administrative officers regarding all the rules and regulations of the department, prepares, for submission to the Department of Justice, cases arising under the various statutes intrusted to the department for administration, and cooperates with the United States attorneys in their prosecution.

I am also strongly of the opinion that the present limitation of \$4,500 on the compensation that may be paid to scientific and technical employees should be increased. We are called upon to secure the services of some of the most highly trained experts in the Nation, many of whom are sought by industrial enterprises, and it has become increasingly difficult to secure and retain men with the requisite qualifications whose services are necessary in order efficiently to do the Government's business. While I realize that the Government can not compete with industry in the matter of salaries, still I think that further leeway should be permitted.

I sincerely trust that this matter may receive the most earnest consideration of the commission. I recognize that the chiefs of bureaus in other departments are involved, but, as a matter of fact, some of them now receive larger compensation than similar officers in this department.

Very truly, yours,

D. F. HOUSTON, *Secretary.*

Mr. HARRISON. I have merely attempted to give the committee a general idea of the estimates and of what they contain. Of course, the chiefs of the bureaus and other officers of the department will appear before you and give the details. Prof. Marvin, Chief of the

Weather Bureau, is here, and, with your permission, will present the estimates of the Weather Bureau which appear on page 25. We will defer until later the estimates of the Office of Secretary and the Office of Farm Management.

I may add, in accordance with the suggestion of the chairman, that I have suggested to the chiefs of the bureaus and others of the department that they prepare brief statements setting forth just what they wish to say about the various items in the estimates, and I believe most of them have done so. We are hoping that they will be given the opportunity to make a connected statement about each item. That, also, is in accordance with the suggestion of the chairman.

Mr. RUBEY. Have the various departments made their annual reports?

Mr. HARRISON. Yes, sir. We have 25 complete sets here this morning, and also 25 copies of the Secretary's annual report. They are available here and can be secured by the members of the committee.

I would also like to insert in the record a brief summary of the estimates which I have had prepared.

(The statement referred to follows:)

Estimates, 1921, United States Department of Agriculture.

Appropriations.	Increase.	
	Apparent.	Actual.
Statutory salaries (not including \$1,673,540 transferred to new lump-fund item for salaries of forest supervisors, deputy supervisors, rangers, and guards).....	\$536,960	\$86,180
Lump-fund appropriations	3,091,381	3,542,161
Total	3,628,341	3,628,341
Appropriation, 1920.....		\$33,809,761
Estimates, 1921, as submitted by bureaus.....		41,953,488
Increase, 1921, as submitted by bureaus.....		8,063,722
Estimates, 1921, as approved by the Secretary.....		37,528,102
Increase, 1921, as approved by the Secretary.....		3,628,341

¹ As \$41,509 of the increase for rent in the District of Columbia is transferred from the sundry civil act, and the increase of \$79,720 for the enforcement of the cotton-futures act merely replaces, in part, certain funds available during the current fiscal year under the wheat price guaranty act, the net increase is \$3,507,112. Furthermore, the item of \$1,000,000 for fighting and preventing forest fires (an increase of \$850,000 over the present appropriation), the item of \$1,000,000 for combating the foot-and-mouth disease, and the item of \$240,000 for the eradication of the pink boll worm of cotton are merely insurance funds and will be used only in case of necessity.

It is estimated that the receipts from the various activities of the department, including timber sales, grazing privileges, water-power permits, and the like, will amount during the fiscal year 1921 to approximately \$6,923,000, compared with \$6,883,000 during the current fiscal year.

Statement giving comparison between department estimates and bureau estimates for 1921 and appropriation act for 1920.

Bureau or office.	Appropriation in agricultural act, 1920.	Bureau or office estimates, 1921.	Increase (+) over or decrease (-) below agricultural act, 1920.	Department estimates, 1921.	Increase (+) over or decrease (-) below bureau or office estimates, 1921.	Increase (+) over or decrease (-) below agricultural act, 1920.
Office of Secretary.....	\$500,520	\$477,140	- \$23,380	\$475,860	- \$1,280	- \$24,660
Bureau of Farm Management and Farm Economics.....	302,590	611,990	+ 309,400	611,990	.....	+ 309,400
Weather Bureau.....	1,880,210	2,465,670	+ 585,460	2,228,150	- 237,520	+ 347,940
Bureau of Animal Industry.....	5,783,231	6,921,287	+ 1,138,056	6,118,451	- 802,836	+ 335,220
Bureau of Plant Industry.....	3,379,638	3,920,098	+ 540,460	3,606,898	- 313,200	+ 227,260
Forest Service.....	5,966,869	7,063,427	+ 1,096,558	6,557,895	- 505,532	+ 591,026
Bureau of Chemistry.....	1,391,571	1,502,411	+ 110,840	1,424,511	- 77,900	+ 32,940
Bureau of Soils.....	491,235	621,045	+ 129,810	620,095	- 950	+ 128,860
Bureau of Entomology.....	1,371,360	2,163,940	+ 792,580	1,219,260	- 944,680	+ 152,100
Bureau of Biological Survey.....	742,170	1,282,655	+ 540,485	978,005	- 304,650	+ 235,835
Division of Accounts and Disbursements.....	44,620	50,620	+ 6,000	50,620	.....	+ 6,000
Division of Publications.....	240,140	379,030	+ 138,890	362,480	- 16,550	+ 122,340
Bureau of Crop Estimates.....	371,102	1,164,715	+ 793,613	967,782	- 196,933	+ 596,680
Library.....	50,160	61,080	+ 10,920	61,080	.....	+ 10,920
Miscellaneous expenses, Department of Agriculture.....	175,500	153,000	- 22,500	141,000	- 12,000	+ 34,500
Rent in the District of Columbia.....	100,000	150,000	+ 50,000	150,000	.....	+ 50,000
States Relations Service.....	4,965,820	4,973,500	+ 67,680	4,968,540	- 4,960	+ 62,720
Bureau of Public Roads.....	747,320	774,320	+ 180,000	748,120	- 26,200	+ 153,900
Bureau of Markets.....	2,810,065	3,453,845	+ 643,780	3,023,395	- 430,450	+ 212,030
Insecticide and Fungicide Board.....	123,970	141,910	+ 17,970	141,910	.....	+ 17,970
Federal Horticultural Board.....	129,000	246,500	+ 117,500	236,500	- 10,000	+ 107,500
Total, Department of Agriculture, for routine and ordinary work	31,355,361	38,578,183	+7,222,822	34,692,542	-3,885,641	+ 3,337,181
MISCELLANEOUS APPROPRIATIONS.						
Demonstrations on reclamation projects.....	48,600	47,000	- 1,600	47,000	.....	- 1,600
Fighting and preventing forest fires.....	.....	1,000,000	+1,000,000	1,000,000	.....	+ 1,000,000
Cooperative fire protection of forested watersheds of navigable streams.....	100,000	500,000	+ 400,000	200,000	- 300,000	+ 100,000
Experiments and demonstrations in live-stock production in the cane-sugar and cotton districts of the United States.....	60,000	60,000	.....	60,000	.....	.....
Experiments in dairying and live-stock production in semiarid and irrigated districts of the western United States.....	40,000	40,000	.....	40,000	.....	.....
Eradication of the foot-and-mouth and other contagious diseases of animals.....	1,000,000	1,000,000	.....	1,000,000	.....	.....
Eradication of pink bollworm.....	595,800	573,300	- 22,500	358,560	- 184,740	- 207,240
Acquisition of lands under the Weeks law.....	600,000	.....	- 600,000	.....	.....	- 600,000
Plant-dust explosions and fires.....	.....	155,000	+ 155,000	100,000	- 55,000	- 100,000
Agricultural exhibits.....	100,000	.....	- 100,000	.....	.....	+ 100,000
Grand total, Department of Agriculture.....	33,899,761	41,953,483	+8,053,722	37,528,102	-4,425,381	+ 3,628,341

Statement showing proposed changes in the statutory rolls of the Department of Agriculture for the fiscal year ending June 30, 1921.

	Number.	Increase.	Total.
New places.....	80	\$113,390	.....
Increase in salary of 1 laboratory aid, Division of Publications, to correct typographical error in agricultural appropriation act for 1920.....		450	.....
Places dropped.....	26		.....
Actual increase.....			86,183
Transfers from lump funds, with corresponding reduction.....	387		450,780
Apparent increase.....			536,960

¹ Not including 1,402 places, aggregating \$1,673,540, transferred to a special lump-fund item under the Forest Service for the employment of forest supervisors, deputy supervisors, rangers, and guards.

NOTE.—On Oct. 31, 1919, there was a total of 21,364 employees in the Department of Agriculture, of whom 5,490 were carried on statutory rolls and 15,871 on lump funds.

Statement showing proposed changes in lump fund appropriations of the Department of Agriculture for the fiscal year ending June 30, 1921.

Items.	Increase.		Decrease.	
	Appar-ent.	Actual.	Appar-ent.	Actual.
Office of the Secretary:				
(103) Extralabor and emergency employments.....			\$7,520	.....
Bureau of Farm Management and Farm Economics:				
(31) Farm management investigations.....	\$288,090	\$297,190		.....
Weather Bureau:				
(53) Expenses in Washington.....	6,940	6,940		.....
(51) Printing office.....	2,200	2,200		.....
(55) Expenses outside of Washington.....	69,200	70,400		.....
(56) Traveling expenses.....	2,200	2,200		.....
(57) Establishment and maintenance of aerological stations.....	195,980	200,000		.....
(58) Forest fire warning service (new).....	15,000	15,000		.....
(59) Marine meteorological work (new).....	50,000	50,000		.....
Bureau of Animal Industry:				
(60) Inspection and quarantine.....	32,660	40,020		.....
(61) Tuberculosis investigation and eradication.....			19,560	.....
(62) Tick eradication.....			10,820	.....
(63) Dairy investigations.....	40,430	51,850		.....
(61) Animal husbandry investigations.....	191,360	199,280		.....
(65) Animal disease investigations.....	16,800	20,650		.....
(66) Hog cholera investigation and eradication.....	17,900	30,000		.....
(67) Dourine investigation and eradication.....			3,600	.....
(69) Meat inspection.....			35,680	.....
Bureau of Plant Industry:				
(79) Investigations in plant pathology.....	15,000	15,000		.....
(80) Fruit disease investigations.....	7,000	7,000		.....
(81) Citrus canker eradication.....			86,600	85,000
(82) Investigations in forest pathology.....			1,200	.....
(83) Eradication of white pine blister rust.....			6,560	.....
(81) Investigation of cotton, truck, and forage crop diseases.....	21,100	23,500		.....
(85) Crop physiology and breeding investigations.....			1,600	.....
(86) Soil bacteriology and plant nutrition investigations.....	10,000	10,000		.....
(87) Soil fertility investigations.....	20,000	20,000		.....
(89) Drug plant, poisonous plant, physiological, and fermentation investigations.....	1,000	1,000		.....
(92) Seed testing.....	12,900	12,900		.....
(93) Cereal investigations.....	72,200	85,000		.....
(96) Alkali and drought resistant plant investigations.....			1,200	.....
(99) Dry land agriculture investigations.....	10,000	10,000		.....
(100) Western irrigation agriculture investigations.....	8,800	10,000		.....
(102) Pomological investigations.....	5,000	5,000		.....
(101) Horticultural investigations.....	28,600	30,000		.....
(105) Nursery investigations (new).....	30,000	30,000		.....
(106) Arlington farm.....	3,600	5,000		.....
(107) Foreign seed and plant introduction.....			18,500	18,500
(109) Purchase and distribution of new and rare seeds.....			1,200	.....
(110) Forage crop investigations.....	66,600	68,000		.....

NOTE.—Numbers in parentheses refer to items in the committee print of the estimates.

Statement showing proposed changes in lump fund appropriations of the Department of Agriculture for the fiscal year ending June 30, 1921—Continued.

Items.	Increase.		Decrease.	
	Appar-ent.	Actual.	Appar-ent.	Actual.
Bureau of Plant Industry—Continued.				
(111) General administrative expenses.....			\$3,060	
(112) Purchase and distribution of valuable seeds.....			3,000	
Forest Service:				
(239) National forests and general administration.....	\$257,886	\$290,406		
(241) Fighting and preventing forest fires.....			150,000	\$150,000
(242) Insect control.....	25,000	25,000		
(243) Supplies and equipment.....	12,500	12,500		
(244) Forest products investigations.....	175,000	175,000		
(245) Range investigations.....	25,000	25,000		
(247) Silvicultural investigations.....	75,000	75,000		
(248) Reconnaissance of forest resources.....	45,000	45,000		
(249) Miscellaneous forest investigations.....	25,640	25,640		
(250) Improvement of national forests.....	100,000	100,000		
Bureau of Chemistry:				
(66) Collaboration with other departments.....	36,000	36,000		
(68) Poultry and egg investigations.....			2,120	
(70) Biological investigations of food and drug products.....	10,000	10,000		
(72) Color investigations.....			720	
(74) Enforcement of the food and drugs act.....			15,140	
(77) Dehydration investigations.....			26,500	22,750
(79) Leather and tanning investigations (new).....	15,000	15,000		
Bureau of Soils:				
(33) Soil physical investigations.....	5,000	5,000		
(34) Investigation of fertilizer resources.....	18,660	18,660		
(35) Soil survey investigations.....	33,200	35,000		
(37) Potash investigations.....	65,300	67,400		
Bureau of Entomology:				
(32) Deciduous fruit insect investigations.....			2,280	
(33) Cereal and forage insect investigations.....	8,600	10,000		
(34) Control of European corn borer.....			250,000	250,000
(35) Southern field crop insect investigations.....	78,000	78,000		
(36) Forest insect investigations.....			1,200	
(37) Truck crop and stored product insect investigations.....			3,200	
(38) Bee culture investigations.....			1,200	
(39) Tropical and subropical fruit insect investigations.....	8,000	8,000		
(43) General administrative expenses.....			1,600	
(44) Preventing spread of moths.....			1,400	
Bureau of Biological Survey:				
(29) Maintenance of mammal and bird reservations.....	5,135	5,135		
(31) Economic investigations (food habits of birds and mammals, etc.).....	110,560	118,960		
(33) Enforcement of the migratory bird treaty act.....	103,000	107,500		
(34) General administrative expenses.....	4,240	4,240		
Division of Publications:				
(78) Labor-saving machinery.....	1,000	1,000		
(79) Stationery and materials.....	1,500	1,500		
(80) Office furniture and fixtures.....	280	280		
(82) Communication and transportation service.....	150	150		
(84) Miscellaneous expenses.....	350	350		
(85) Agricultural exhibits.....	50,000	50,000		
Bureau of Crop Estimates:				
(20) Administrative expenses and field investigations.....	550,000	550,000		
Library:				
(16) General expenses.....	8,200	10,000		
Miscellaneous expenses:			34,500	34,500
Rent in the District of Columbia.....	\$ 50,000	\$ 50,000		
States Relations Service:				
(36) Administration of the Hatch, Adams, and Smith-Lever Acts.....	1,900	10,000		
(37) Extension work in northern and western States.....			35,560	
(38) Extension work in southern States.....			10,240	
(40) Farmers' institutes and agricultural schools.....			4,240	
(41) Insular experiment stations.....	15,000	15,000		
(42) Home economics investigations.....	28,020	30,000		
(43) General administrative expenses.....	8,420	10,000		
Bureau of Public Roads:				
(53) Road management investigations.....			2,040	
(54) Road building and maintenance investigations.....			5,920	
(55) Road material investigations.....	30,000	30,000		
(57) Farm irrigation investigations.....	20,000	20,000		
(58) Farm drainage investigations.....	30,000	30,000		
(59) Rural engineering investigations.....	75,000	75,000		

¹ A new lump fund item of \$1,673,540 is recommended to provide for the employment of forest supervisors deputy supervisors, rangers, and guards, transferred from the statutory roll, without increase in the total amount.

² Transferred from "Miscellaneous" section of the bill.

³ Includes \$41,500 to be transferred from the sundry civil act.

Statement showing proposed changes in lump fund appropriations of the Department of Agriculture for the fiscal year ending June 30, 1921—Continued.

Items.	Increase.		Decrease.	
	Appar-ent.	Actual.	Appar-ent.	Actual.
Bureau of Markets:				
(80) Marketing and distribution.....	30,400	45,000		
(81) Market news service on fruits and vegetables.....	19,000	50,000		
(82) Regulation of stockyards.....			75,000	75,000
(83) Market news service on live stock and meats.....	34,000	50,000		
(84) Market news service on dairy and poultry products.....			10,830	
(85) Market news service on grain, hay, feeds, and seeds.....			5,400	
(86) Food-supply investigations.....			3,180	
(87) Market inspection of perishable foods.....	41,700	50,000		
(88) Cotton standardization and cotton testing.....			2,000	
(89) Rural cooperation.....			15,780	15,780
(91) State cooperation in marketing work.....	22,250	26,650		
(92) Grain-standardization investigations.....			4,900	
(93) Enforcement of the standard-container act.....	1,000	1,000		
(95) Enforcement of the cotton-futures act.....	67,140	173,620		
(96) Enforcement of the grain-standards act.....			27,500	
(97) Administration of the warehouse act.....	45,000	45,000		
(100) Completion of work of Domestic Wool Section of War Industries Board.....			35,000	35,000
Enforcement of the insecticide act (20).....	16,770	17,970		
Federal Horticultural Board:				
(20) Enforcement of the plant-quarantine act.....	97,750	100,000		
Miscellaneous:				
(1) Demonstrations on reclamation projects.....			1,600	
(2) Fighting and preventing forest fires (new).....	\$1,000,000	\$1,000,000		
(3) Cooperative fire protection of forested watersheds of navigable streams.....	100,000	100,000		
(9) Eradication of pink bollworm.....			207,240	197,400
(11) Acquisition of lands under the Weeks forestry law.....			600,000	600,000
(13) Investigation and prevention of plant-dust explosions and fires (new).....	100,000	100,000		
(19) Agricultural exhibits.....			\$ 100,000	\$ 100,000
Total.....	4,927,761	5,126,091	1,836,380	1,583,930
Net.....	3,091,381	3,542,161		

¹ Inasmuch as \$100,000 is made available from appropriations under the wheat-price guaranty act for expenditure during the fiscal year 1920 in carrying out the provisions of amendments to the cotton-futures act, and as only \$6,100 has been transferred to the statutory roll of the Bureau of Markets for the fiscal year 1921, this represents an actual decrease of \$20,280.

² Includes \$150,000 now provided in the item for fighting and preventing forest fires, under general expenses of the Forest Service.

³ \$50,000 transferred from this item to the Division of Publications.

CHANGES IN PHRASEOLOGY.

BUREAU OF FARM MANAGEMENT AND FARM ECONOMICS.

Name of bureau.—The name of the Office of Farm Management has been changed to Bureau of Farm Management and Farm Economics.

(31) *Farm management investigations.*—New language has been substituted for the present lump-fund item for farm-management investigations, as follows: "To investigate the cost of production of farm products; to study economic problems connected with farm financial relations, farm labor, land utilization, ownership and tenancy, and rural-life conditions; to compile and publish the Atlas of American Agriculture; and to encourage improved farm-organization and farm-management methods."

WEATHER BUREAU.

(57) *Establishment and maintenance of aerological stations.*—After the word "phenomena" has been inserted "and the issuing of weather forecasts, advices, and warnings," after "in aid of," the words "military, naval, and civil"; after "aeronautics," the words "and in the development of navigation of the air"; and before "other" the word "all."

(60) *Sale of Mount Weather.*—A new paragraph has been added authorizing the sale of Mount Weather, including land, together with buildings and other improvements, the net proceeds of the sale, after deducting the expenses incidental thereto, to be turned into the Treasury as miscellaneous receipts.

BUREAU OF ANIMAL INDUSTRY.

(61) *Tuberculosis investigation and eradication.*—After the amount the words “of which \$500,000 shall be set aside for administrative and operating expenses and \$1,000,000 for the payment of indemnities” have been omitted; also the words “within the limitations above provided” in the first proviso.

(69) *Meat inspection.*—The words “including the purchase of tags, labels, stamps, and certificates printed in course of manufacture” have been inserted before the amount; and the balance of the paragraph, relative to the inspection of equine meat has been eliminated. The provision authorizing payment for overtime work at meat-inspection establishments has also been omitted.

BUREAU OF PLANT INDUSTRY.

(93) *Cereal investigations.*—The words “leaf rust” have been inserted after the words “black rust.”

(99) *Dry land agriculture investigations.*—After the amount the following proviso has been added: “*Provided*, That the limitations in this act as to the cost of farm buildings shall not apply to this paragraph.”

(107) *Foreign seed and plant introduction.*—The following language, after the amount, has been omitted: “Of which sum the Secretary of Agriculture is authorized to expend \$50,000, or so much thereof as may be necessary, for the purchase of not to exceed fifty acres of suitable land near the city of Washington, District of Columbia, and the erection thereon of all necessary buildings and equipment, and for the establishment of a plant-inspection and detention station: *Provided*, That not to exceed \$10,000 of this sum shall be expended for the purchase of the land.” In place of the language eliminated the following new proviso has been inserted: “*Provided*, That the Secretary of Agriculture is hereafter authorized to acquire by gift, devise, or by purchase for a sum not to exceed \$1 for each site, the sites now occupied by field stations at Chico, California, consisting of about eighty acres and used for propagating, testing, and distributing new plant introductions: the site at Bellingham, Washington, consisting of about sixty acres and used as a bulb station and for propagating, testing, and distributing new crop plants, and the sites at Buena Vista, Florida, and Savannah, Georgia, consisting of about twenty-five acres, and about forty-six acres, respectively, and used for propagating, testing, and distributing new crop plants peculiarly adapted to the warmer parts of the United States.”

(108) *Purchase and distribution of new and rare seeds, and forage crop investigations.*—This paragraph has been split into two items, the forage crop work being segregated from the new and rare seed item without change in phraseology.

FOREST SERVICE.

(80) *Introductory paragraph, general expenses.*—The proviso relative to the erection of buildings on the national forests has been amended so as to raise the limitation on the cost of buildings from \$800 to \$1,500, and the words “or improved” have been inserted after the word “erected.”

(81) *Employment of forest supervisors, rangers, and guards.*—A new lump-fund item has been inserted providing for the salaries of forest supervisors, deputy supervisors, rangers, and guards, heretofore carried on the statutory roll, without increase in the total appropriation.

(82) *Use, maintenance, improvement, and protection of national forests.*—The words “of other employees” have been inserted after “salaries.”

(111) *Cœur d'Alene National Forest.*—The following proviso has been added after the amount: “*Provided*, That the Secretary of Agriculture is authorized to use, not to exceed \$500 of the funds herein appropriated for the Cœur d'Alene National Forest, for the marking of the graves in Wallace, Idaho, of thirteen men who lost their lives while fighting forest fires in the employ of the Forest Service on the Cœur d'Alene National Forest on August 10, 1910, including concrete curbing for the graves, and seeding, planting, and improving the plat.”

(118) *Custer National Forest.*—Before the amount the words “and South Dakota” have been added.

(159) *Minam National Forest.*—This item has been omitted, as it is proposed to consolidate this forest with the Whitman National Forest.

(165) *Monterey National Forest.*—This item has been omitted, as the Monterey National Forest has been consolidated with the Santa Barbara National Forest.

(198) *Sioux National Forest.*—It is proposed to consolidate this forest with the Custer National Forest. The item has therefore been omitted.

(240) *Land classification and entry surveys.*—After the words "authorized by law" the following new language has been added: "And for the survey thereof by metes and bounds or otherwise by employees of the Forest Service under the direction of the Commissioner of the General Land Office."

(241) *Fighting and preventing forest fires.*—This item has been omitted and provision made for the work under the "Miscellaneous" section of the bill.

(246) *National forest planting.*—The proviso authorizing the purchase of land used as a forest nursery site for the Michigan National Forest has been omitted.

(250) *Improvement of the national forests.*—After the first proviso the following language has been inserted: "Provided further, That the Secretary of Agriculture is authorized to use not to exceed \$5,000 of the funds herein appropriated for the purchase of lands needed for ranger stations." In the next proviso the word "hereafter" has been inserted after "that"; the words "any funds appropriated for the Forest Service" substituted for "the money herein appropriated"; the words "in and" and "this appropriation" eliminated, and the word "law" added. In the third proviso the word "hereafter" has been inserted to follow "that"; the words "this appropriation" eliminated; and the words "any funds appropriated for the Forest Service" substituted for "this appropriation."

BUREAU OF ENTOMOLOGY.

(35) *Southern field crop insect investigations.*—After the amount have been added the words "of which sum \$25,000 shall be immediately available."

BUREAU OF BIOLOGICAL SURVEY.

(30) *Sullys Hill National Park game preserve.*—This paragraph has been amended by inserting the words "and maintenance" after "improvement" and changing the word, "preserves" to "preserve."

DIVISION OF PUBLICATIONS.

(77) *Introductory paragraph, general expenses.*—Before the words "as follows," at the end of the paragraph, the words "and information and exhibit work" have been inserted.

(81) *Photographic equipment and materials.*—In the first proviso, after "that," the word "hereafter" has been inserted.

(85) *Agricultural exhibits.*—This paragraph has been amended by eliminating the clause relating to the National Dairy Show, and the clause limiting the amount that may be expended for any one fair to \$5,000, and by adding at the end of the item the words "including rent and employment of persons and means in the District of Columbia and elsewhere."

(87) *Details to and from the Division of Publications.*—The following new paragraph has been inserted: "Hereafter employees of the Division of Publications may be detailed by the Secretary of Agriculture for publication, information, and related work in any of the bureaus or offices of the department, for duty in or out of the District of Columbia, and employees of the bureaus and offices may also be detailed to the Division of Publications for duty in or out of the District of Columbia, traveling expenses of employees so detailed, when necessary, to be paid from the appropriation of the bureau or office in connection with which such travel is performed."

BUREAU OF CROP ESTIMATES.

(17-20) *Administrative expenses and field investigations.*—The two items "Administrative expenses" and "Field investigations" have been consolidated and the phraseology of the item amended to read as follows: "For all necessary expenses, including salaries and the employment of labor in the city of Washington and elsewhere, freight and express charges, official traveling expenses, office fixtures, supplies, calculating machines, and other equipment for collecting, compiling, abstracting, analyzing, summarizing, interpreting, and publishing data relating to agriculture, including field printing of special forms or schedules, and State crop reports; for making crop and live-stock estimates, including acreage, yield, number, and value, losses by diseases, insect pests, and adverse weather conditions, requirements, and consumption of seeds, fertilizers, insecticides, and fungicides, and marketable surpluses on farms, by counties, recognized producing districts, and States, independently or in cooperation with other Federal and State departments and agencies."

MISCELLANEOUS EXPENSES.

Miscellaneous expenses, Department of Agriculture.—The following clause at the end of the item has been omitted: "Of which \$33,000 shall be for necessary repairs to the central heating plant of the department."

STATES RELATIONS SERVICE.

(41) *Insular experiment stations.*—The immediately available clauses in the Alaska and Guam subitems have been omitted, as has also the proviso granting leave of absence privileges to employees assigned to permanent duty in the Virgin Islands and allowing accumulative leave to employees of the insular experiment stations.

BUREAU OF PUBLIC ROADS.

(55) *Road material investigations.*—At the end of the paragraph new language has been added as follows: "For conducting laboratory and field experiments, and for studies and investigations in road design, independently or in cooperation with State highway departments and other agencies."

(59) *Rural engineering investigations.*—A clause has been inserted at the end of this paragraph making \$50,000 immediately available.

BUREAU OF MARKETS.

(95) *Enforcement of the cotton futures act.*—After "cotton futures act" the words "as amended March 4, 1919" have been inserted.

(96) *Enforcement of the grain standards act.*—The following proviso has been added at the end of the paragraph: "Provided, That section 6 of the said act is hereby amended, effective on and after the passage of this act, by striking out of the first sentence the words 'sold, offered for sale, or consigned for sale, or which has been shipped, or delivered for shipment in interstate or foreign commerce shall have been inspected,' and substituting therefor the words 'shall have been inspected by an inspector licensed under the act,' and by striking out of the last sentence the words 'made after the parties in interest have had opportunity to be heard.'"

(98) *Administration of the warehouse act.*—The paragraph amending sections 6 and 18 of the warehouse act has been omitted.

(99) *Authority to administer oaths, examine witnesses, etc.*—The paragraph empowering the Secretary of Agriculture to administer oaths, examine witnesses, and call for the production of books and papers, in connection with the performance of the duties required of the Bureau of Markets in the administration or enforcement of the provisions of the acts relating to the Department of Agriculture, has been eliminated.

FEDERAL HORTICULTURAL BOARD.

(22) *Plant quarantine in the District of Columbia.*—A new paragraph has been inserted, amending the plant quarantine act of August 20, 1912, so as to authorize the Secretary of Agriculture to regulate the movement of plants and plant products, including nursery stock, from and into the District of Columbia, and to control injurious plant diseases and insect pests within the District of Columbia.

MISCELLANEOUS.

(8) *Eradication of foot-and-mouth disease and other contagious diseases of animals.*—"Fiscal year 1919" has been changed to "fiscal year 1920" and "1920" to "1921."

(10) *Loan or exchange of American bison.*—This paragraph has been omitted.

(11) *Mileage rates for motor vehicles.*—The year "1920" has been changed to "1921."

(14) *Actual traveling expenses.*—The following new paragraph has been inserted: "Officers and employees of the Department of Agriculture during the fiscal year ending June 30, 1921, while traveling on official business away from their designated posts of duty may be allowed not to exceed \$7 per day for subsistence, but in no case shall they be reimbursed any sum in excess of expenses actually incurred by them."

(15) *Per diem traveling expenses.*—The following new paragraph has been inserted: "The Secretary of Agriculture, during the fiscal year ending June 30, 1921, is authorized to prescribe per diem rates of allowance not exceeding \$8 in lieu of subsistence to officers or employees of the Department of Agriculture engaged in field work or traveling on official business outside of the District of Columbia away from their designated posts of duty."

(16) *Leave of absence for field employees.*—The following new paragraph has been inserted: "The employees of the Department of Agriculture, outside of the District of Columbia, may hereafter, in the discretion of the Secretary of Agriculture, be granted leave of absence not to exceed thirty days in any one year, which leave may, in exceptional and meritorious cases, where such employee is ill, be extended in the discretion of the Secretary of Agriculture not to exceed thirty days additional in any one year."

(17) *Accumulative leave of absence for employees in Alaska, Hawaii, Porto Rico, Guam, and the Virgin Islands.*—The following new paragraph has been inserted: "Hereafter if any employee of the Department of Agriculture assigned to permanent duty in Alaska, Hawaii, Porto Rico, Guam, and the Virgin Islands shall elect to postpone taking any or all of the annual leave to which he may be entitled, he may, in the discretion of the Secretary of Agriculture, subject to the interests of the public service, be allowed to take at one time in any calendar year unused annual leave which may have accumulated within not to exceed four calendar years immediately preceding and be paid at the rates prevailing during the year such leave has accumulated."

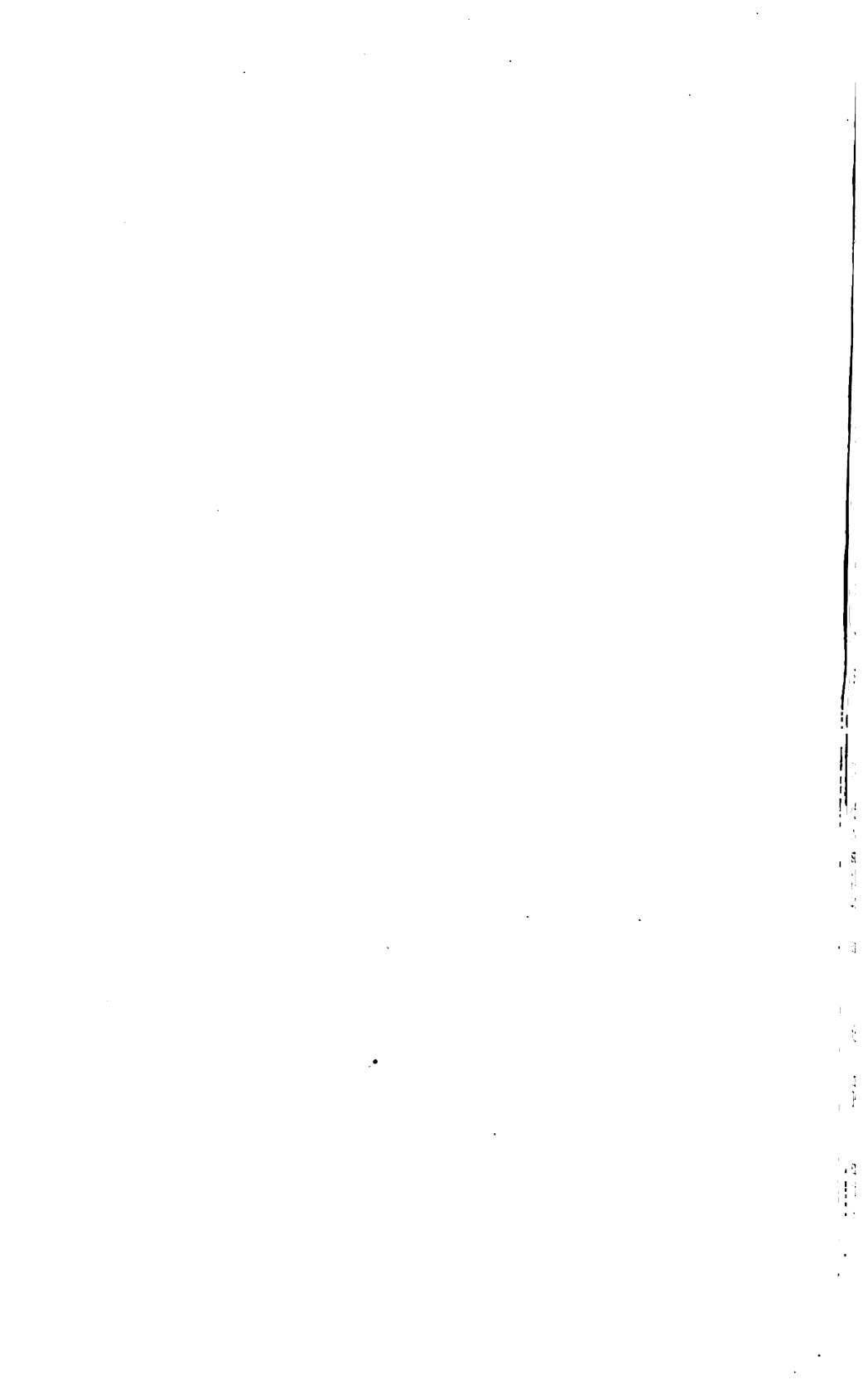
(18) *Cooperation.*—This paragraph, restricting the use of funds contributed by agencies outside of the Federal Government for use in cooperative work, has been omitted.

(22) *Wrapped meats.*—This paragraph, making the word "package," where it occurs in the act amending section 8 of the food and drugs act, applicable to wrapped meats, has been omitted.

(23) *Leave of homesteaders.*—This paragraph, excusing homesteaders from residence on their lands because of serious drought conditions, so as to enable them to seek employment elsewhere in order to obtain the necessities of life, has been omitted.

(24) *Protection of employees of the Forest Service and the Bureau of Biological Survey engaged in the enforcement of law.*—The following new paragraph has been inserted: "That section 62 of the act of March 4, 1909 (35 Stat. L., 100), entitled 'An act to codify, revise, and amend the penal laws of the United States,' is hereby amended by inserting after the name 'Bureau of Animal Industry' where it occurs in that section the following: 'of the Forest Service, or of the Bureau of Biological Survey,' so that the section will hereafter read as follows:

"Sec. 62. Whoever shall forcibly assault, resist, oppose, prevent, impede, or interfere with any officer or employee of the Bureau of Animal Industry, of the Forest Service, or of the Bureau of Biological Survey, of the Department of Agriculture, in the execution of his duties, or on account of the execution of his duties, shall be fined not more than \$1,000, or imprisoned not more than one year, or both; and whoever shall use any deadly or dangerous weapon in resisting any officer or employee of the Bureau of Animal Industry, of the Forest Service, or of the Bureau of Biological Survey, of the Department of Agriculture, in the execution of his duties, with intent to commit a bodily injury upon him or to deter or prevent him from discharging his duties, or on account of the performance of his duties, shall be fined not more than \$1,000, or imprisoned not more than five years, or both."



COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVE,
Friday, December 19, 1919.

AFTER RECESS.

The committee met, pursuant to the taking of a recess, at 2 o'clock p. m., Hon. Gilbert N. Haugen (chairman) presiding.
Present: Members of the committee.

OFFICE OF THE SECRETARY.

The CHAIRMAN. The committee will come to order. We will proceed with the hearings. We will next consider the estimates for the office of the Secretary, page 9.

Mr. HARRISON. Mr. Reese, chief clerk of the department, is here, Mr. Chairman, and will explain those items.

STATEMENT OF MR. B. M. REESE, CHIEF CLERK, DEPARTMENT
OF AGRICULTURE.

The CHAIRMAN. Do you desire to make a general statement or do you desire to take up the estimates item by item?

Mr. REESE. I will be very brief, Mr. Chairman. The statutory roll of the office of the Secretary provides for no increases at all. The items in brackets—items 11, 13, and so on—indicate transfers to the statutory roll of the Division of Publications, in accordance with a plan to consolidate all of the publication, informational, and exhibit activities of the department.

Mr. HARRISON. This is a part of a plan to consolidate all the publication work into one division.

The CHAIRMAN. Under one head?

Mr. HARRISON. Yes, sir.

The CHAIRMAN. You propose to take it from under the office of the Secretary?

Mr. HARRISON. Yes; we propose to take the publication units now in the office of the Secretary and place them under the Division of Publications.

The CHAIRMAN. It is changing back?

Mr. HARRISON. No. The office of information and the office of exhibits, which heretofore have been directly under the Secretary's office, will be transferred to the Division of Publications. The work is now supervised by the chief of that division, and the purpose of

these changes is to effect the necessary adjustments in the appropriation bill.

The CHAIRMAN. As I understand it, you are putting the publication work all under one head?

Mr. HARRISON. Yes, sir.

The CHAIRMAN. And taking it from under the Secretary's office?

Mr. HARRISON. Of course, the work of the Division of Publications will continue to be done under the direction of the Secretary.

Mr. REESE. The other changes noted are unimportant. Item No. 34 is a change in the designation of one clerk in lieu of one auditor at the same salary; that is proposed simply to give greater flexibility in filling the place in case there should be a vacancy.

The CHAIRMAN. In order to give flexibility in filling the place. Is this in the Division of Publications?

Mr. REESE. No.

The CHAIRMAN. Item No. 13 is a transfer of one assistant at \$2,000 to the statutory roll of the Division of Publications?

Mr. REESE. Yes, sir.

The CHAIRMAN. And No. 11?

Mr. McLAUGHLIN of Michigan. No. 11 is one assistant in charge of information, \$3,000, to be transferred to the statutory roll, Division of Publications. Was that the salary paid in the other division?

Mr. REESE. Yes, sir.

Mr. McLAUGHLIN of Michigan. Was he on a statutory roll in the other division?

Mr. REESE. As you will see, he is now on the statutory roll of the office of the Secretary. We are proposing his transfer from that roll to the statutory roll of the Division of Publications.

Mr. McLAUGHLIN of Michigan. It is transferring him from one statutory roll to another?

Mr. REESE. Yes. All these cases are transferred from one statutory roll to another at the same salary.

The CHAIRMAN. My understanding is that a year or so ago these places were transferred from the Division of Publications to the Secretary's office. Are you now transferring them back?

Mr. HARRISON. Two or three years ago several editors on the rolls of the Division of Publications who were engaged in reading manuscript under the direction of the assistant in charge of manuscripts in the Secretary's office, and who had been doing that work for some time, were transferred in the bill to the latter office. Since that time we have worked out a plan for the consolidation of all the informational, exhibit, and motion-picture activities in the Division of Publications, and now we wish to transfer to that division these editors, together with all other employees in the Secretary's office engaged on informational, exhibit, or motion-picture work.

The CHAIRMAN. On what basis is the recommendation made?

Mr. HARRISON. The general plan, as I have said, is to bring together all our publication activities under the supervision of the Chief of the Division of Publications in order to promote efficiency and facilitate the handling of the work. The informational work is merely one phase of our publication activities. The same is true with regard to exhibits and motion pictures.

The CHAIRMAN. That was true in the past just as well as it is now; why are you making the changes now?

Mr. HARRISON. It is a better administrative arrangement, and is a great improvement over the present plan.

The CHAIRMAN. After trying the other?

Mr. HARRISON. We are convinced that the arrangement we are proposing is the best. As I say, the Chief of the Division of Publications, by administrative order, has been charged with the supervision of all the publication work, even though a part of it is in the Secretary's office; and the purpose of the changes suggested here is merely to effect the necessary adjustments in the appropriation bill.

The CHAIRMAN. What I wish to have explained is why you are switching them back and forth.

Mr. HARRISON. I explained a few moments ago that a few editors were transferred to the Secretary's office because they were detailed to and actually working in the Secretary's office, under the immediate direction of the assistant in charge of manuscripts in the Secretary's office. This assistant has since been made Chief of the Division of Publications, and we are now bringing all the publication work together under his supervision. The changes proposed here, including the transfer of the editors, are necessary in order to effect the consolidation. The places to be transferred to the Division of Publications are listed on page 14, and the Secretary's roll has been correspondingly reduced in each case. They are also shown within the heavy parentheses as you go through the statutory roll.

The CHAIRMAN. The trouble in that is that that will not appear in the record. My idea is to have it all in the record. Why do you change one auditor to a clerk?

Mr. REESE. That is to give greater flexibility in filling the place when it happens to become vacant. As a matter of fact, the auditor actually does some clerical work.

The CHAIRMAN. You have auditors in every division?

Mr. REESE. We have an auditor in each division. That is required by law. That is required by the Dockery Act of 1912.

The CHAIRMAN. The auditor does the auditing work?

Mr. HARRISON. The auditing work is done in the different branches of the department.

The CHAIRMAN. What is done under the Division of Accounts?

Mr. HARRISON. The Division of Accounts is the disbursing office of the department.

The CHAIRMAN. It has nothing to do with the auditing?

Mr. HARRISON. It does no auditing. However, it examines the accounts submitted to it for payment in order to determine whether they represent a legal charge against the appropriation and whether the extensions and totals are correct.

The CHAIRMAN. That is, it determines the legality?

Mr. HARRISON. The Division of Accounts, before it will pay an account, must necessarily determine whether or not, in its opinion, the account comes within the scope of the appropriation. The function of the auditor is to ascertain whether it complies with the administrative and fiscal regulations of the department and the accounting rules of the Treasury. The Dockery Act of 1912 requires that the administrative examination of accounts shall be made by the various bureaus. Formerly we had a centralized accounting system, but this was changed after the passage of that act.

The CHAIRMAN. How about the checking in the bureau?

Mr. HARRISON. I do not quite understand what you have in mind.

The CHAIRMAN. Does anybody check up the bureaus and pass on the expenditures and salaries?

Mr. HARRISON. The matter of salaries is an entirely different matter. Before any appointment can be made in the department the chief of the bureau must make an appropriate recommendation to the Secretary's office and the recommendation must be considered and approved by the Secretary before the man is placed on the rolls of the department.

The CHAIRMAN. How about the other expenditures?

Mr. HARRISON. The other expenditures are examined by the auditors in the various bureaus.

The CHAIRMAN. Is there one for every bureau?

Mr. HARRISON. There is one for each bureau, and he has such assistants as may be necessary to handle the accounts of that bureau.

The CHAIRMAN. But what does he determine?

Mr. HARRISON. The financial clerk of each bureau checks the expenditures of his bureau and determines whether they are administratively correct, whether they are in accordance with the comptroller's decisions and the fiscal regulations of the department and whether they comply with the instructions of the chief of the bureau. Then the chief of the bureau examines the accounts to ascertain whether they are reasonable and proper, and if he approves them they are forwarded to the Division of Accounts and Disbursements for payment. After payment has been made, and sometimes before, the accounts are transmitted to the Auditor for the State and Other Departments for examination.

The CHAIRMAN. Who is held responsible?

Mr. HARRISON. The disbursing clerk of the department and the chief of the bureau.

The CHAIRMAN. Who is responsible as to whether or not the expenditures are correctly made?

Mr. HARRISON. The chief of the bureau, in the first instance. The Chief of the Division of Accounts, of course, is the bonded disbursing officer of the department, and he is liable under his bond for any illegal expenditures. The secretary's office also, through its office of inspection, inspects and examines the accounting work of the various bureaus from time to time.

The CHAIRMAN. Is there any further checking up?

Mr. HARRISON. Not in the sense that we make a complete audit of expenditures at the close of the fiscal year. The chief of the bureau is administratively responsible under the terms of the Dockery Act of 1912.

The CHAIRMAN. The responsibility is there, but who ascertains whether it is properly done or not?

Mr. McLAUGHLIN of Michigan. I suppose the chief of the bureau is the man who is charged with carrying on the work properly in his bureau, and he makes recommendations to the secretary, and estimates are made as to the amount of money that will be necessary to carry on that kind of work and the men to be employed. The auditors you speak of simply determine whether or not the money is spent in accordance with the law, and the chief of the bureau keeps

track of the kind of work that is done, sees whether it is properly done, and whether there is sufficient funds to justify the expenditures.

Mr. HARRISON. Yes, sir.

The CHAIRMAN. That kind of a system is no good, or at least I hope no one will think it is.

Mr. McLAUGHLIN of Michigan. It depends on the man at the head of the bureau, whether he can be in touch with the work that is going on and is able to say whether the money is being expended wisely or not.

The CHAIRMAN. Suppose a chief of a bureau should decide to give a man a trip around the world and pay all of his expenses, which would cost, let us say, \$10,000. There is no one to question whether or not that money is rightly expended—no one except the chief of the bureau? Is that sufficient?

Mr. HARRISON. I did not intend to create any such impression.

The CHAIRMAN. What I am trying to get at is what kind of checking up is done?

Mr. HARRISON. Mr. Chairman, we have a volume of fiscal regulations which indicate and limit the authority of the chiefs of the bureaus in connection with expenditures. The auditors, of course, must see that these regulations are complied with and that the necessary authority was given before the expenditures were incurred.

The CHAIRMAN. That is what I am trying to get at.

Mr. HARRISON. Take the special case you mention. The chief of the bureau can not authorize, nor is there anyone in the department who can authorize, a trip around the world without securing the approval, in advance, of the secretary.

The CHAIRMAN. Limitations are one thing and checking is another—two entirely different things.

Mr. HARRISON. As I said, Mr. Chairman, no one in the Department of Agriculture, except the secretary or the acting secretary, can authorize a foreign trip.

The CHAIRMAN. I am not discussing the limitations when I am talking about checking. What assurance have we that this money is being properly expended? That is what I am trying to get at.

Mr. REESE. There are letters of authorization that are sent at the beginning of the fiscal year to the chiefs of the bureaus which direct them to conduct the work of their bureaus under the law and the fiscal regulations. After that has been done, all the expenditures of the department are reported to Congress in detail.

The CHAIRMAN. That is getting away from the question again. What I want to know is whether or not there is anyone who examines these expenditures with the view of determining how the money has been expended, and whether anyone knows whether it has been properly expended or not? That is what I am trying to get at.

Mr. HARRISON. I think we have an adequate number of checks in the Department of Agriculture to prevent unwise expenditures.

Mr. McLAUGHLIN of Michigan. As I see it, clerks and auditors are assigned to determine whether or not the money has been expended in any particular case in accordance with law. That isn't a difficult matter—that sort of checking. I suppose the head of the bureau, when he has to make disbursements of money, determines whether

or not the kind of work shall be done. If they have the money, they have a trained force for that work, and he employs men to do or directs men to do it. It is left to his judgment to decide whether it is properly done, whether the results he hoped to obtain have been accomplished, and whether, in his judgment, it ought to be continued, and if there is any change in plans he directs the change, and so on.

The CHAIRMAN. What I have reference to, to be perfectly candid, is this: If he wants to send a man out in a certain State on the pay roll to do political work, drawing a salary from the Public Treasury, who passes upon whether that is a proper expenditure of the money?

Mr. HARRISON. I may say that a chief of bureau can not begin a new project or a new line of work without the prior approval of the Secretary. He can not authorize purchases in excess of \$100 except in the case of the Forest Service and the Weather Bureau, where the limitation is \$500, without securing the Secretary's approval in advance. He can not make appointments without first obtaining the Secretary's consent, except under certain unusual conditions in the field, and even then all the facts must be presented to the Secretary for consideration. We require the fullest sort of information in each case, including the previous history, training, and experience of the person concerned, and determine, on the statement of the chief of the bureau, whether the person's services are necessary and whether the salary recommended is reasonable in all the circumstances.

No travel can be performed, except in certain limited areas, without the prior approval of the Secretary. Every day travel letters of authorization come in for the consideration of the Secretary, and he determines whether the travel is justified, whether the expenditure involved is warranted, etc., before he gives his approval. No one can attend meetings, except local gatherings in the field in line with work of the department, without submitting the matter to the Secretary. No foreign travel can be made without the previous approval of the Secretary. There are numerous other checks on expenditures prescribed by the administrative, property, and fiscal regulations of the department. The limitations in these regulations prevent chiefs of bureaus and other officers of the department from incurring any expenditures of consequence without securing the advance approval of the Secretary. They operate as very effective checks and the checks are made before it is too late, before the obligation has been incurred.

The CHAIRMAN. Too late? You could put a man in jail for that sort of a crime. That would be the remedy—to put him in jail.

Mr. HARRISON. That would be true in the case of illegal expenditures—

The CHAIRMAN (interposing). I am not criticizing any thing in the department. I merely want to find out about the checking.

Mr. LESHER. What system of checking is used?

Mr. HARRISON (continuing). A man can be put in jail, of course, where he acts illegally; but an unwise expenditure is a different thing. Perhaps I ought to say in this connection that the Secretary's office, in addition to the limitations and checks to which I have referred, is constantly calling for statements from the bureaus about expenditures of various sorts. These statements are examined carefully, and if it seems desirable, additional instructions regarding them are issued. We have a committee on finance and business methods, whose

duty, as its name implies, is to consider various financial and business problems arising throughout the department and to make appropriate recommendations to the Secretary for consideration and action.

As I have explained, Mr. Leshner, we have an auditor in each bureau, a financial clerk, who is charged with the duty of checking expenditures to see whether or not they are in accordance with the law, the fiscal regulations, and the comptroller's decisions. The chief of each bureau is administratively responsible for the expenditures in his bureau, but no expenditures of any consequence can be made without the prior approval of the Secretary, as I have already indicated. In this way there is a constant check on the propriety, as well as on the legality, of expenditures in the Department of Agriculture.

Going back to the question of auditing, the accounts, after being examined by the financial clerk and having received the administrative approval of the chief of the bureau, are transmitted to the Division of Accounts, where they are again examined to see whether the extensions and additions are correct and whether they are legal, because the chief of that division is the bonded disbursing officer of the department, and, if he makes an erroneous payment, he is responsible under his bond. The accounts go from the disbursing officer to the Auditor for State and Other Departments, where another examination is made and, in some cases, they may go to the comptroller. If the auditor disagrees with any payment made by the disbursing officer, he will make disallowances in his account, and, unless the disbursing officer can secure reimbursement from the person in the bureau who was responsible for the expenditure, the disbursing officer must make good the amount involved.

I shall be glad to submit to the committee for its information a copy of our fiscal regulations in order that it may see just how expenditures in the department are checked.

The CHAIRMAN. That is what I have been trying to get at, Mr. Harrison.

Mr. HARRISON. I am sorry that I did not understand at the beginning of the discussion just what you had in mind. I thought you were of the opinion that we ought to have a force of employees assigned especially to the task of checking up the wisdom of expenditures, say, at the close of each fiscal year.

The CHAIRMAN. The expenditures should be checked in some way. Any business concern would require that. It possibly is not being in all the departments of the Government, which may account for the extravagance and waste of expenditures.

Mr. HARRISON. Mr. Chairman, I would like to—

The CHAIRMAN (interposing). I am not referring to your department particularly.

Mr. HARRISON. I shall be glad at any time to lay all our records before the committee. So far as I know, we have nothing to conceal. Before any charge of waste or extravagance is made, it seems to me that the facts ought to be fully ascertained. Only in this way can the committee determine whether there has, in fact, been any extravagance or waste in the Department of Agriculture.

The CHAIRMAN. I am charging the various departments of the Government with waste; I am not referring specifically to your department.

Mr. HARRISON. That includes the Department of Agriculture.

The CHAIRMAN. If you will read the speeches on the floor of the House and the evidence produced before Congress, I think you will find all of that to be correct.

Mr. HARRISON. Of course, we can not accept any responsibility for what some other department is alleged to have done. I take it that, in any event, the Department of Agriculture can not be charged with waste or extravagance unless the facts justify it.

The CHAIRMAN. I am charging waste to the Government as a whole; I do not think that can be contradicted. All this committee can do is to find out about the one department, the department we are responsible for, what it is doing.

You may proceed, Mr. Reese.

Mr. REESE. The next is item 37, on page 10:

Eighteen clerks, class 2 (decrease of four by transfer to statutory roll, Division of Publications, and one new place, making a net decrease of three).

Four clerks of class 2 are transferred from the statutory roll of the office of the Secretary to the statutory roll of the Division of Publications. All the transfers from the Secretary's office to the Division of Publications are brought together in the table at the bottom of page 14.

Mr. ANDERSON. You are centralizing the exhibits and publications and informational work in the Division of Publications?

Mr. REESE. Yes, sir; as Mr. Harrison explained at some length, the idea is to bring all the publication and informational work together, so that it will come under the direction of the Chief of the Division of Publications. These transfers involve no increases in salary whatever.

Mr. ANDERSON. On page 12, item 59, you have—

Ten firemen, at \$1,080 each (by transfers from lump funds, one from meat inspection, Bureau of Animal Industry; one from black and stripe rust, one from blister rust control, and one from administrative expenses, Bureau of Plant Industry; two from food and drugs act, Bureau of Chemistry; one from deciduous fruit insects, Bureau of Entomology; one from farmers' cooperative demonstrations in North and West, States Relations Service; one from food supply investigations, and one from cotton futures act, Bureau of Markets).

Mr. REESE. Yes, sir.

Mr. ANDERSON. I would like to have an explanation in regard to that item.

Mr. REESE. I will give the history of that case. In August, 1918, the firemen were receiving a salary of \$720. Vacancies occurred which we could not fill at that price at that time. The matter was taken up with the Government Employment Bureau, in order to secure some men to fill the places, but it was impossible to obtain firemen for \$720. In fact, it was practically impossible to secure them at any figure. Then a committee of firemen waited on the mechanical superintendent and informed him that they could not exist on a salary of \$720 and presented what was in fact an ultimatum, that they would leave the service the next day if their pay was not increased. The work of the department has to go on; its power plant has to be operated; the department can not get along without it. Rather than see the power plant closed down and its operations practically hamstrung, we advanced these firemen to a

wage of \$3.35 a day, placing them upon the lump-sum rolls for that purpose. Their compensation was later changed to \$1,080 per annum.

We now propose in the estimates to transfer these firemen from the lump-sum rolls, on which they are now carried, to the statutory roll of the office of the Secretary, at a salary of \$1,080 per annum, and to reduce the lump-sum rolls correspondingly.

Mr. RUBEY. You have been paying these men out of the lump-sum rolls?

Mr. REESE. Yes, sir.

Mr. RUBEY. And your purpose is to place them on the statutory roll as indicated here?

Mr. REESE. Yes, sir. The expense was apportioned among the various bureaus in order not to deplete too heavily the funds of any one bureau.

Mr. TINCHER. The department, then, is really placing these men, who are now on the lump-sum rolls, on the statutory roll?

Mr. REESE. Yes, sir.

Mr. HUTCHINSON. What is the reason for this?

Mr. REESE. To carry out the established policy of transferring from lump-sum rolls to statutory rolls employees whose work is permanent and continuous. As already explained, it is proposed to transfer these firemen from the various lump-sum rolls from which they are now paid to the statutory roll of the Secretary's office, and to reduce the lump-sum rolls accordingly.

Mr. McLAUGHLIN of Michigan. These men are all employed in one place?

Mr. REESE. They are employed in the central power plant of the department and in the supplementary plant at the greenhouses.

Mr. RUBEY. One is paid from one roll, and another man is paid from another roll, one is paid from meat inspection, and another from black and stripe rust, and so on, and that has been done since last August.

Mr. REESE. August, 1918.

Mr. McLAUGHLIN of Michigan. They are all doing the same sort of work?

Mr. REESE. Yes, sir.

Mr. McLAUGHLIN of Michigan. And one man is paid from the funds of one bureau, and another is paid from the funds of another bureau?

Mr. REESE. Yes, sir.

Mr. McLAUGHLIN of Michigan. How long has that practice been going on?

Mr. REESE. Details may be made to and from the office of the Secretary under the law, and they have to be made in certain cases.

Mr. McLAUGHLIN of Michigan. I asked how long the practice had prevailed of having a number of men working together, doing exactly the same kind of work, at the same place, one being paid from the funds of one bureau and another paid from the funds of another bureau in the department.

Mr. HARRISON. All these firemen are now detailed to the office of the Secretary and the purpose of these changes is to bring them all together on the statutory roll of the Secretary's office.

Mr. ANDERSON. This is a recommendation to strike out 10 firemen who are on lump-sum rolls and to add 10 firemen to the statutory rolls?

Mr. REESE. Yes.

Mr. ANDERSON. You add 10 firemen here to the statutory roll by transfer from a number of lump-sum rolls, evidently to replace firemen who were previously on the statutory roll. Then, under item No. 61, you drop four firemen at \$720 each.

Mr. REESE. That is a decrease in the number of firemen at \$720. We have added some more firemen.

Mr. ANDERSON. That is what I wanted to know about.

Mr. REESE. The task of firing, as you doubtless realize, is a 24-hour-a-day proposition for 365 days in the year. Our firemen were required to be on duty practically all the time. They only had two days off a month. They did not get Sundays and holidays like the rest of us. We thought that was unfair to these men, and we increased the number of firemen so as to give each three days off a month.

Mr. ANDERSON. What is the increase?

Mr. REESE. Six men.

The CHAIRMAN. How big a power plant have you?

Mr. REESE. The central power plant with the small supplementary plant at the greenhouses for winter use aggregate 1,700 horsepower. There are eight boilers, and the plant furnishes heat for the department and generates electricity.

Mr. ANDERSON. You have one central heating plant?

Mr. REESE. We have one central heating plant and a small supplementary plant at the greenhouses used in winter.

Mr. ANDERSON. You have eight boilers. How many firemen all together?

Mr. REESE. Fifteen.

Mr. ANDERSON. How many tons of coal do you use in this plant?

Mr. REESE. Nine thousand tons.

The CHAIRMAN. How many firemen are you transferring from \$720 to \$1,080?

Mr. REESE. Ten.

The CHAIRMAN. This is a larger item—

Mr. ANDERSON. They didn't have that many.

The CHAIRMAN. How many did you transfer from the statutory roll to these lump-sum rolls?

Mr. REESE. Eight.

The CHAIRMAN. They were on the statutory roll at \$720?

Mr. REESE. Yes, sir.

The CHAIRMAN. Did you transfer them to the lump-sum rolls at \$1,080?

Mr. REESE. At \$3.36 a day and later (July, 1919) changed them to \$1,080 per annum.

The CHAIRMAN. And you now want to transfer them back to the statutory roll at \$1,080?

Mr. REESE. Yes, sir; exactly.

The CHAIRMAN. They are doing exactly the same work as they did before?

Mr. REESE. Yes, sir.

The CHAIRMAN. They have no additional responsibilities?

Mr. REESE. No, sir.

The CHAIRMAN. That is absolutely contrary to what we have been told here a number of times.

Mr. RUBEY. They have set out here, Mr. Chairman, what they have done; they have given us all the details, and have shown why it was necessary to take the course they did. This was an unusual case; there was nothing else for the department to do, and I think we ought to be fair about it.

The CHAIRMAN. But have they the authority?

Mr. RUBEY. We ought to be fair enough to the department not to say that this is contrary to what we have been told, when they are coming here and telling us what has been done.

The CHAIRMAN. They are telling us—

Mr. REESE. We had to have the firemen or close down the plant. These men came to us and said that they could not live on \$720 and were going to quit.

The CHAIRMAN. Mr. Harrison, how do you explain that?

Mr. HARRISON. You may recall that last year, when I was before the subcommittee, I quoted the language of the law dealing with transfers to lump-sum fund rolls. Originally, the law prohibited absolutely the transfer of anyone from a statutory to a lump-sum roll at an increased salary unless there had been an increase in his duties and responsibilities. It was later amended by Congress so that it now contains this proviso:

Provided, That this section shall not apply to mechanics, artisans, their helpers and assistants, laborers, or any other employees whose duties are of similar character and required in carrying on the various manufacturing and constructing operations of the Government.

The comptroller has held that this proviso is applicable to laborers and mechanics employed in the Department of Agriculture. There is, therefore, no restriction on the transfer of the "mechanics, artisans, their helpers and assistants, laborers," etc., and such transfers can legally be made even though the duties of the employees involved are not changed in any way.

The statement has been made here repeatedly, in general terms, that the law prohibits transfers from statutory to lump-sum rolls at increased salaries unless there has been a change in the duties and responsibilities of the employees concerned, but, as I have indicated here to-day, and on several other occasions, Congress made a special exception in the cases of "mechanics, artisans, their helpers and assistants, laborers, or any other employees whose duties are of similar character and required in carrying on the various manufacturing and constructing operations of the Government."

The CHAIRMAN. The fact of it is that Congress has had nothing to say about the matter in this case.

Mr. HARRISON. Mr. Chairman, this is what happened: These men were transferred—

The CHAIRMAN (interposing). These men were on the statutory roll. They were transferred to the lump-sum rolls at an increased salary. Now you are transferring them back to the statutory roll from the lump-sum rolls. It appears that Congress has had nothing to say as to the salaries.

Mr. RUBEY. I want to make a statement in that connection. This is a clear case of where the Department of Agriculture had to have men to fire their boilers or shut down the plant, and, in order to

get the men, they had to pay them more money. Hence they took this course. Now, so far as I am concerned, I think they did the right thing. The matter is now before the committee and will be before the committee when we go into executive session to discuss what shall be done, and the committee can pass on it at that time. I think the department has been fair. They have told exactly what they did, and why they did it, and we have got the record before us, and the Congress and this committee have got all the information in a fair, square, open way.

Mr. HARRISON. I would like to say a word here. The department simply could not close down its plant and it therefore took the course described by Mr. Reese to retain its trained firemen. We could not secure the services of any sort of firemen at the statutory rates available, especially in view of the fact that the Potomac Electric Power Co. was paying \$5 a day. You can imagine what would happen if our power plant, the artery of the department, had been shut down. The damage would have been incalculable.

Mr. LESHNER. What would have happened had you closed down the plant? Would the department have been compelled to lay off its clerks and paid them just the same?

Mr. HARRISON. It is difficult to indicate the disastrous effect which the closing down of our plant would have had on our work or what it would have cost the Government.

Mr. REESE. The operation of all of the elevators would have been paralyzed without the operation of the power plant, and no artificial light would have been available.

There are four places as firemen at \$720 each, which are dropped for the reason that we can not permanently fill the places.

Mr. RUBEN. These 4 are up here among the 10?

The CHAIRMAN. Why were they dropped?

Mr. REESE. We can't fill the places permanently at that salary.

The CHAIRMAN. Why not say they are dropped because they are employed at an increased salary?

Mr. REESE. These four places under item 61 are actually dropped.

The CHAIRMAN. You had four more than you needed?

Mr. REESE. At that salary. This note explains that we are dropping four places because it has been found impossible to fill them at this low salary, \$720. At the time these estimates were made up the places were vacant; they have since been temporarily filled by men appointed "pending certification," who will be dropped if these estimates are approved.

The CHAIRMAN. You are going to employ others at increased salaries?

Mr. REESE. Not necessarily.

The CHAIRMAN. An increase in salary is provided under item 59?

Mr. REESE. Yes, sir.

The CHAIRMAN. You propose to drop four of them at \$720 and to add six at \$1,080?

Mr. REESE. The 10 places at \$1,080 are added by transfer from the lump-sum rolls. The men are being carried this year on these lump-sum rolls. Now we are simply asking to have them transferred to the statutory roll at the salaries they are now receiving. The action suggested here does not involve any increases in salaries.

The CHAIRMAN. You mean to say that you have four men more than you need, whom you are going to drop?

Mr. REESE. We have four places at \$720 more than we need.

The CHAIRMAN. You are proposing to replace them?

Mr. REESE. We are dropping those places because we can not get the men permanently at that salary.

The CHAIRMAN. Is it not a fact that you are going to drop those four men at \$720 and employ others at \$1,080?

Mr. REESE. No.

The CHAIRMAN. You are adding six at \$1,080. Why do that if you have four at \$720 that you do not need?

Mr. REESE. We wish to drop four places at \$720.

The CHAIRMAN. Those vacant places have been filled at \$1,080, have they not. Your note states that four firemen are dropped at \$720, and you are employing other firemen at \$1,080?

Mr. REESE. I will endeavor to clear up this situation as to the firemen. At the present time we have the following firemen:

10 firemen at.....	\$1,080
1 fireman at.....	1,080
1 fireman at.....	840
8 firemen at.....	720

The one temporary fireman at \$1,080 will be dropped at the close of the heating season.

Of the eight places at \$720 per annum four will be dropped if the estimates are approved. Meanwhile they are filled by men "pending certification," as we can not secure permanent men at this salary. The four men occupying those places will be dropped. At present they are employed as coal passers and for relief at the greenhouse power plant. If the estimates are approved the department will have in the next fiscal year the following firemen:

10 firemen at.....	\$1,080
1 fireman at.....	840
4 firemen at.....	720

A total of 15. This number is the minimum at which the power houses can be successfully operated.

The CHAIRMAN. Under item 101 you have one carriage driver at \$600, changed to one messenger or laborer, \$600. You state in the note that the position of carriage driver is now vacant and that it has not been possible to fill it at the salary provided. The services of an additional laborer, however, are needed, and the change in title suggested will permit the use of the place for that purpose. What does he do?

Mr. REESE. We desire to change that place from one carriage driver to one messenger or laborer at the same salary.

The CHAIRMAN. You are going to dispense with the carriage driver?

Mr. REESE. Yes, sir.

The CHAIRMAN. He is not to be employed at all?

Mr. REESE. Not in that capacity.

The CHAIRMAN. Will he do the same work?

Mr. REESE. There isn't anybody in that place.

The CHAIRMAN. What do you propose to do?

Mr. REESE. Our purpose is to change the designation from carriage driver to messenger or laborer.

The CHAIRMAN. And pay him how much?

Mr. REESE. \$600.

The CHAIRMAN. Who takes this place as driver?

Mr. REESE. No one.

The CHAIRMAN. There is to be no driver from now on?

Mr. REESE. Not in that place. We have other carriage drivers, carried at different places on the roll.

The CHAIRMAN. What are you going to pay them?

Mr. REESE. There is another carriage driver under the item for skilled laborers at \$960.

The CHAIRMAN. You are increasing the salary from \$600 to \$960?

Mr. REESE. No, sir; it is not the same place. This \$960 place is for another driver.

The CHAIRMAN. Is he doing the same work that he has done heretofore?

Mr. REESE. Yes, sir.

The CHAIRMAN. Then you are increasing his salary \$360?

Mr. REESE. No, sir; there is no increase in this man's pay. This \$600 place is merely a change in title.

The CHAIRMAN. You say you are going to continue the services of the \$600 man?

Mr. REESE. Not in that place; not that man.

The CHAIRMAN. Not the man; but the job.

Mr. REESE. We have a carriage driver's place at \$600 which was vacant when these estimates were prepared.

The CHAIRMAN. It is vacant?

Mr. HARRISON. I understand that we now have a laborer in that place. The Civil Service Commission gave us permission to employ a laborer until we could get the title changed. We are, therefore, recommending that the title be changed to "messenger or laborer."

The CHAIRMAN. Is this the situation: You had a carriage driver at \$600?

Mr. REESE. Yes, sir.

The CHAIRMAN. You had to dispense with his services because you could not fill the place at that salary, and you are now employing another carriage driver at \$960 on some other roll or under some other designation? You find it necessary to do that, nobody finds fault with it, but we should have the facts—are those the facts?

Mr. REESE. No, sir. We have had two carriage drivers, not counting this man at \$600. One is paid \$960 and is carried under item 95 as a skilled laborer. Another carriage driver is paid \$840. In addition to these two, we had this third place, under item 101, which we could not fill with a carriage driver at \$600. But, as Mr. Harrison has explained to you, the Civil Service Commission gave us authority to fill the place with a laborer at \$600, with the understanding that the department would recommend in the estimates that the title of the place be changed, and this we are now proposing. I am trying my best to explain it. Mr. Chairman, and Mr. Harrison has explained that the Civil Service Commission gave us permission to employ a laborer at \$600.

Mr. ANDERSON. You have here now one carriage driver at \$960?

Mr. REESE. Yes, sir.

Mr. ANDERSON. You have another at \$840?

Mr. REESE. Yes, sir.

Mr. ANDERSON. Another at what?

Mr. REESE. Another place at \$600, which we have filled with a laborer, not being able to get a carriage driver.

Mr. ANDERSON. There is no driver in that place, and you can employ a laborer at \$600 to drive the carriage?

Mr. REESE. No, sir; we want a change in designation.

Mr. HARRISON. He will not drive the carriage except possibly as a relief.

The CHAIRMAN. How much are you paying the laborer?

Mr. REESE. \$600.

Mr. ANDERSON. And he is working as a carriage driver?

Mr. HARRISON. He is working and will continue to work as a laborer, although at times he may relieve the carriage drivers. The Civil Service Commission suggested that we change the designation of this place to that of laborer.

Mr. McLAUGHLIN of Michigan. How many carriages have you for which you provide drivers?

Mr. REESE. We have four carriages, but not four drivers.

Mr. McLAUGHLIN of Michigan. For whose use are they?

Mr. REESE. For the use of the Secretary and of the disbursing officer when he goes up to the Treasury to draw money to pay the employees, and for other official business.

Mr. McLAUGHLIN of Michigan. Has the Secretary's Office any automobiles?

Mr. HARRISON. No, sir; it has not.

Mr. LESHER. Could it save time if it had any?

Mr. HARRISON. Unquestionably.

Mr. McLAUGHLIN of Michigan. How many horses do you keep for that particular service?

Mr. REESE. Six.

Mr. RUBEY. I had supposed that the Secretary used a carriage because he preferred to drive horses rather than use an automobile, as I notice that some of the other Secretaries do. The Postmaster General likes to ride around in a carriage, and I have noticed two other Cabinet officers riding in carriages, and I supposed that the Secretary of Agriculture preferred them.

Mr. HARRISON. As a matter of fact, he does, Gov. Rubey. At the same time he recognizes full well that automobiles are great time savers, especially in covering considerable distances—for instance, in going from one section of the city to another.

Mr. RUBEY. Is it really cheaper to maintain automobiles than it is to maintain carriages and horses?

Mr. HARRISON. I imagine that is true. As a matter of fact, the department has a real need for some machines here in Washington. You know that the department is located away from the center of the city and away from the other branches of the Government. It is an exceedingly difficult place to get to, and the time consumed annually by the officers of the department in going to the other places is

enormous in the aggregate. The car line does not render very satisfactory service. Altogether it would be a real saving to provide a few machines to be used solely for official business.

Mr. McLAUGHLIN of Nebraska. Do you suppose it would be possible to get a few of these Army cars that are rusting away?

Mr. HARRISON. Under the provisions of section 7 of the Post Office appropriation act of February 28, 1919, some cars have been turned over to the department for use in connection with road-building operations under the provisions of the Federal aid road act. Most of these cars have been distributed to the States, but, in accordance with the law, a small percentage of them have been retained by the department for the use of the district and field engineers of the Bureau of Public Roads in connection with road-building operations. A few are assigned to district No. 10, the headquarters of which are located here, but the machines are used in inspecting road projects in the States covered by the district—Maryland, Pennsylvania, Virginia, and other States.

The CHAIRMAN. In the maintenance of these automobiles you have not authority to repair them nor to buy gasoline, but you have authority to hire machines.

Mr. HARRISON. A law passed in 1914 prohibits us from purchasing or maintaining motor-propelled passenger-carrying vehicles without specific authority from Congress. We can not buy any passenger-carrying machines for use in the District of Columbia, but this is not so with reference to trucks.

The CHAIRMAN. New legislation will be required to take care of that?

Mr. HARRISON. New legislation will be required before we can purchase any passenger-carrying machines.

The CHAIRMAN. And maintain them.

Mr. HARRISON. And maintain them either.

The CHAIRMAN. I am told that you can hire a car, but that you can not buy gasoline with which to operate it.

Mr. HARRISON. Yes; we can hire machines. We have requested Congress to give us authority to maintain the cars which we have secured from the War Department under section 7 of the Post Office appropriation act of February 28, 1919. A provision carrying this authority has been inserted in the Kahn bill, which has been favorably reported by the Committee on Military Affairs.

The CHAIRMAN. The Reavis bill is a substitute for the Kahn bill; I believe no legislation will be added to that.

Mr. HARRISON. We would like very much then to have inserted in the Agricultural appropriation bill a provision giving us authority to maintain the machines secured from the War Department.

The CHAIRMAN. Will you submit a suggestion?

Mr. HARRISON. I shall be very glad to do so and I hope that some legislation will be enacted to take care of the situation.

The CHAIRMAN. How many Assistant Secretaries have you?

Mr. HARRISON. We have one and one vacancy.

The CHAIRMAN. The law provides two.

Mr. RUBEY. It provides for two, but one is not filled.

Mr. ANDERSON. You are having some difficulty in keeping them.

Mr. HARRISON. You will recall that the men who occupied the

positions created during the war were borrowed from the States and they came here to serve merely during the existence of the emergency. After the emergency was over they returned to their former duties. I refer to Mr. Pearson, Mr. Ousley, and Mr. Christie. It was necessary for Mr. Pearson to return to Iowa before the expiration of the war. We had three Assistant Secretaries during the war. One was provided for in the regular appropriation bill, and the other two in the food production act. In the appropriation bill for the current year Congress made provision for two Assistant Secretaries regularly. At the present time we have one Assistant Secretary and there is one vacancy which has not been filled because of the difficulty of getting the right sort of man for the place at the compensation available.

The CHAIRMAN. Is there anything more, Mr. Reese?

Mr. REESE. I have nothing to add, Mr. Chairman.

The CHAIRMAN. Thank you, Mr. Reese.

(The committee thereupon proceeded to consider the estimates of the Bureau of Entomology.)



COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Friday, December 19, 1919.

The committee met at 10 o'clock a. m., Hon. Gilbert N. Haugen (chairman) presiding.

The CHAIRMAN. Mr. Harrison, whom do you desire to have heard first?

Mr. HARRISON. Mr. Chairman, Dr. H. C. Taylor, Chief of the Office of Farm Management, is here, and if it is agreeable to the committee he will present the estimates of that office.

BUREAU OF FARM MANAGEMENT AND FARM ECONOMICS.

The CHAIRMAN. I might say to the committee I have a communication here from the Secretary in reference to the Office of Farm Management which, without objection, will be inserted in the record. (The letter referred to follows:)

WASHINGTON, D. C., *December 12, 1919.*

HON. GILBERT N. HAUGEN,
*Chairman Committee on Agriculture,
House of Representatives.*

DEAR MR. HAUGEN: In considering the estimates for the Office of Farm Management for the fiscal year 1921 I would like to suggest that \$50,000 be made available for expenditure immediately upon the passage of the appropriation bill. As you will readily understand, it would be highly desirable to begin the cost-of-production studies contemplated by the estimates with the opening of the crop season. If funds were available, therefore, for expanding the studies by the 1st of March or the 1st of April, it would be possible to do a large amount of effective work during the coming season. On the other hand, if the increased funds recommended are not provided until July 1 of next year it would be necessary to defer much of the work until the following spring.

I have asked Dr. H. C. Taylor, Chief of the Office of Farm Management, to discuss this matter in detail when he appears before the committee.

Very truly, yours,

D. F. HOUSTON, *Secretary.*

The CHAIRMAN (continuing). We will be glad to hear from you, Dr. Taylor.

**STATEMENT OF DR. H. C. TAYLOR, CHIEF OF THE OFFICE OF
FARM MANAGEMENT, DEPARTMENT OF AGRICULTURE.**

Dr. TAYLOR. I have put in your hands a brief of what I wish to present. On the first page is an outline of the different lines of work to be undertaken by the Office of Farm Management, as outlined by the special committee called by the Secretary last January and February to draw up a plan for the reorganization of the Office

of Farm Management. You will see that it includes the cost of production, farm organization, farm finance, farm labor, agricultural history and geography, land economics, and farm-life studies.

I wish to give special attention to the subject of cost of production. Preliminary work has been started in this field. Necessarily it had to be on a rather small scale, but cost of production studies have been made in the cost of producing cotton, wheat, tobacco, and sugar, and special, detailed studies have been undertaken in those regions where the agriculture is of a mixed character, such as in the Corn Belt, where you can not find the cost of producing one specific product without getting detailed records from the whole farm. In a number of States special work has been organized to give detailed results. This work is going on in Ohio, Indiana, Iowa, Missouri, Kansas, and Montana.

I wish to give you some notion of the kind of results that can be gotten from the cost studies.

Mr. TINCER. Let me understand you: Is this [referring to Dr. Taylor's detailed outline of work] to go in as part of the hearings?

Dr. TAYLOR. If you like. I have prepared this statement especially in order to get the matter before you, and thought the simplest way would be to put it in your hands and then to discuss the points involved.

Mr. TINCER. Do you think it ought to go into the hearings, Mr. Chairman?

The CHAIRMAN. All of it?

Mr. TINCER. Yes.

The CHAIRMAN. It occurred to me that we might print the first page here. That gives in detail the projects. I take it you will cover most of it in your statement. I am not sure that the charts can be printed without special authority from the House.

Mr. HARRISON. Mr. Chairman, we can eliminate the charts. I think it would be very helpful to the committee to have the statement available in the hearings. It will cover only five or six printed pages.

The CHAIRMAN. Do you expect to cover this fully in your remarks?

Mr. TAYLOR. I only expect to refer to it and to discuss this chart which can not well be printed.

The CHAIRMAN. Then I believe it had better go in.

Mr. RUBEN. Yes; it had better go in.

(The statement referred to follows, the charts being omitted:)

STATEMENT OF THE CHIEF OF THE OFFICE OF FARM MANAGEMENT IN SUPPORT OF THE ESTIMATES FOR THE BUREAU OF FARM MANAGEMENT AND FARM ECONOMICS FOR THE FISCAL YEAR 1921.

THE IMPORTANCE OF EXPANDING THE WORK IN FARM MANAGEMENT AND FARM ECONOMICS.

Farm management and farm economics is an important branch of agricultural research that has not yet received adequate attention in the Department of Agriculture.

The problems which relate to the improvement of varieties of plants, the introduction of new plants from foreign countries, the improvement of cultural methods and practices, the control of plant diseases, insect and animal pests, the problems of soil fertility, the improvement of breeds of farm animals and

in methods of feeding and handling them, and the control of animal diseases—in short the problems which relate to the growing of particular crops or kinds of animals—have long received more adequate attention than have those which bear upon the effective organization of the farm.

It is the function of the Bureau of Farm Management and Farm Economics to study the problem of combining all these individual lines of production into balanced systems of farming that will make for more efficient use of land, labor, and equipment, and the more intelligent combination of crops and livestock enterprises, to the end that costs may be reduced, profits increased, and agriculture as a business put on a more satisfactory basis. Until recent years little attention has been given to this problem. Marketing, with its numerous economic questions, is now beginning to get attention in some measure commensurate with the importance of the problems involved. The next important step contemplated by the Department of Agriculture is the expansion of the work in farm management and farm economics in order that this important line of activity may be developed to the point where the demands for information in this field may be adequately met.

OUTLINE OF RESEARCH WORK IN FARM MANAGEMENT AND FARM ECONOMICS AS RECOMMENDED BY SPECIAL COMMITTEES ON THE REORGANIZATION OF THE OFFICE OF FARM MANAGEMENT.

- I. Cost of production:
 1. Final records.
 2. Enterprise records.
 3. Complete cost records.
 4. Price relations.
 5. Basic unit factors of cost.
- II. Farm organization:
 1. Types of farming.
 - a. Determination of enterprises.
 - b. Plan or combination of enterprises.
 2. Size of business.
 3. Farm plan or layout.
 4. Effective use of labor and equipment.
 5. Intensity of production.
 6. Business methods.
- III. Farm finance:
 1. Methods of financing.
 2. Insurance.
 3. Taxation.
 4. Other financial relations.
- IV. Farm labor:
 1. Supply and movement.
 2. Trend of population.
 3. Living and housing problems.
 4. Creating new productive enterprises for farm labor.
 5. Standards of supervision and compensation for farm labor.
- V. Agricultural history and geography:
 1. Trend of agricultural development.
 2. Shifts of agricultural production.
 3. Relation of American to foreign agriculture.
 4. Supervision of Atlas.
- VI. Land economics:
 1. Land resources.
 2. Land values.
 3. Land ownership and tenancy.
 4. Land settlement and colonization.
 5. Land policies.
- VII. Farm life studies:
 1. Rural home life.
 2. Opportunities for social contacts in typical rural communities.
 3. Rural organization.
 4. The relation of educational and religious institutions to farm-life problems.

VII. Farm life studies—Continued.

5. The relation of health and the various forms of disability to rural welfare.
6. Social effects of the various types of farm labor, tenancy and landlordism.

COST OF PRODUCTION AND FARM ORGANIZATION.

Cotton-cost studies have been made during 1919 in 10 areas in South Carolina, Georgia, Alabama, and Texas. When completed these studies will show the basic elements of the cost of producing cotton on 830 farms. Wheat-cost data are being obtained in Kansas, Missouri, Nebraska, Minnesota, North Dakota, and South Dakota on approximately 650 farms. The study of the cost of producing sugar beets has been continued, cost data for about 260 farms having been obtained this year. These farms represent five areas in Utah and Idaho. The cost of producing tobacco is being studied on 150 representative tobacco farms in Kentucky in cooperation with the State experiment station. In cooperation with the experiment stations in Indiana, Illinois, Iowa, Missouri, and Nebraska, accounts are being kept this winter on 25 farms in each State with a view to determining the cost of fattening cattle and the place of cattle feeding in the organization of the farm.

In addition to these special studies, complete detailed accounts are being kept on about 150 farms in cooperation with the State colleges and experiment stations in Ohio, Kansas, Minnesota, and Montana. Such accounts are especially valuable in studying the problems of farm organization, and they contribute material information regarding the basic elements of cost. Farm-business analysis surveys have been continued in Georgia, Florida, North Carolina, West Virginia, New Hampshire, Ohio, Indiana, Iowa, and Wisconsin. Co-operative work in this line has been started in Maryland, New Jersey, Washington, and Idaho. In the application of the accounting method to the study of cost of production much of the work can be carried on most effectively in conjunction with studies in farm organization. This is especially true where more than one crop is produced on the same farm, as is generally the case.

It is recognized that in cost studies many times the number of farms covered thus far should be studied to insure results that may be considered as authoritative. With the limited funds available for this year the aim has been to develop practical methods of investigation which will yield the results desired when carried out on the more extensive scale contemplated in the present budget.

There is an insistent demand for a study of the cost of the different kinds of farm power. In this day, when so much attention is being given to the introduction of mechanical power, it is a matter of great consequence that cost data should be available which will give the farmer a basis of deciding which kinds of power or which combination of the different kinds of power will enable him to farm most effectively. Plans are being made for the starting of this work so soon as funds are available.

EXAMPLES OF COST PRODUCTION DATA—COST OF PRODUCING COTTON IN 1913 AND 1918, SUMTER COUNTY, GA.

In Table I is shown the number of farms producing cotton at various costs for the two years 1913 and 1918. For 1913 the costs are shown for 534 farms, 268 of which are white-owner operated farms, 49 white tenant, 31 colored owner, and 186 colored-tenant operated farms. In 1918 there were 550 farms, 280 of which were white owner, 56 white tenant, 48 colored owner, and 166 colored-tenant operated farms.

These figures show a wide range in the cost of production on different farms for each year. In 1913 six farms produced cotton below 7 cents per pound, while three had costs above 30 cents per pound. In 1918 only two farms had costs of less than 13 cents per pound, while on 10 farms the costs were above 50 cents per pound. Seventeen per cent of the farms, producing 17 per cent of the cotton in 1913, had costs below 10 cents per pound, while 19 per cent of the farms, producing only 9 per cent of the cotton, had costs of 16 cents or more per pound. In 1918, 16 per cent of the farms, producing 25 per cent of the cotton, had costs under 20 cents per pound, while 16 per cent of the farms, producing only 7 per cent of the cotton, had costs of 35 cents or more per

pound. The chart shows that in 1913 over 50 per cent of the farms produced cotton within a range of 10 to 14 cents per pound, and in 1918, 50 per cent of the farms produced within a range of 20 to 30 cents per pound.

TABLE I.—*Variation in the cost of producing lint cotton per pound on different farms in Sumter County, Ga., 1913 and 1918.*

Cost in cents per pound of lint.	1913					1918				
	White owners.	White renters.	Colored owners.	Colored renters.	All farms.	White owners.	White renters.	Colored owners.	Colored renters.	All farms.
	Farms.	Farms.	Farms.	Farms.	Farms.	Farms.	Farms.	Farms.	Farms.	Farms.
5			1	1	2					
6		1		3	4					
7	3	1	1	9	14					
8	6	6	3	9	24					
9	17	2	4	21	44					
10	23	7	6	26	62					
11	35	7	2	21	65		1			1
12	27	5	3	20	55	1				1
13	43	4	1	22	70	1	1	4	2	8
14	24	5	1	12	43	4		1		4
15	20	4	2	15	41	3	3	1	4	12
16	19	1	2	12	34	8	2	1		8
17	13	3		6	22	11	2	1	8	15
18	3	1		2	6	7	3	1	8	22
19	6	2	1	2	11	9	6	1	8	19
20	9			1	10	9	1	1	19	35
21	9		1	1	11	9	1	3	5	18
22	3				3	14	4	1	9	28
23	3		1		4	18	4	3	11	36
24				1	1	18	2		10	30
25	2				2	17	4	5	10	36
26				1	1	13	1	4	9	27
27				1	1	14	2	4	11	31
28	1				1	9	1	2	7	19
29						13	2	1	6	22
30						15		2	7	24
31	1				1	11	2	2	3	18
32						7	3		3	13
33						11	2	2	6	21
34						13			3	16
35						10		1	1	12
36			1		1	5			1	6
37						5			1	6
38						3	3		2	8
39						5		1		6
40						3		1	3	7
41						2			1	3
42						4		1	4	9
43							1			1
44						1	1		1	3
45						3				3
46							1		2	3
47						1	1	1	1	4
48							1		1	2
49						1				1
50	1				1	1			1	2
51							1			1
52						1				1
53						1				1
54						1				1
55						2				2
56								1	1	2
57						1				1
58										1
	268	49	31	186	534	280	56	48	166	550

TABLE II.—*Distribution of cost of producing cotton on farms operated by white owners, Sumter County, Ga.*

[1913—268 farms; 1918—280 farms.]

Item of cost.	1913			1918		
	Cost per acre.	Per cent of total cost.	Cost per pound of lint.	Cost per acre.	Per cent of total cost.	Cost per pound of lint.
Labor.....	\$16.52	42	\$0.061	\$34.46	45	\$0.108
Fertilizer.....	6.11	16	.019	9.23	12	.029
Ginning.....	.93	2	.003	1.76	2	.006
Use of land and overhead.....	10.44	26	.033	21.37	28	.067
Other costs.....	5.28	14	.016	9.64	13	.030
Total.....	39.28		.122	76.46		.239

Table II shows the items that go to make up the cost of producing cotton, divided into five groups: Labor, fertilizer, ginning, use of land, and "other costs."

Labor was the largest single cost connected with the growing of cotton. The labor cost in 1913 was \$16.52 per acre, or 5.15 cents per pound of lint, and \$34.46 per acre, or 10.79 cents per pound of lint, in 1918. The expense for the use of cotton land, including real estate overhead expense, was second in importance. This cost in 1913 was \$10.44 per acre, or 3.26 cents per pound of lint, and \$21.37 per acre, or 6.9 cents per pound of lint, in 1918. The cost of fertilizer was \$6.11 per acre, or 1.9 cents per pound of lint, in 1913, and \$9.23 per acre, or 2.89 cents per pound of lint, in 1918. Ginning amounted to .93 cents per acre, or 0.3 cent per pound of lint, in 1913, and \$1.76 per acre, or 0.5 cent per pound of lint, in 1918. "Other costs," including interest, shelter, and depreciation on machinery and mules, and minor items, amounted to \$5.28 per acre, or 1.65 cents per pound of lint, for 1913, and \$9.64 per acre, or 3 cents per pound of lint, in 1918. The total cost on these farms was \$39.28 per acre, or 12.25 cents per pound of lint, in 1913, and \$76.46 per acre, or 23.9 cents per pound of lint, in 1918. A comparison of the figures for the two years shows a marked increase in cost, but a striking similarity between the two sets of figures showing per cent of total cost.

TABLE III.—*Basic requirements in producing an acre of cotton.*

[Laurens County, Ga., 85 farms, 1918.]

Elements of cost.	Unit.	Average, 85 farms.	Range.		Average, 85 farms.	Range.		Remarks.
			Lowest 10 farms.	Highest 10 farms.		Low- est 10 farms.	Highest 10 farms.	
		Quantity.	Quantity.	Quantity.	Dollars.	Dollars.	Dollars.	
Man-hours.....	Hours...	142	60	202				On farms re- porting. Do.
Horse-hours.....	do.....	63	42	90				
Fertilizer.....	Pounds...	294	185	550				
Manure.....	Loads...	3.5	0.37	8.0				Do.
Seed.....	Bushels...	.82	.42	1.14				
Sacks, baskets, and sheets.					0.26	0.09	0.92	
Ginning, bags, and ties.					3.10	1.72	5.25	Owned farms. 46 owned farms. 15 cash-rent farms. 22 cotton-rent farms.
Insurance and taxes.					.30	.28	.85	
Machinery.....					1.69	.62	3.20	
Overhead.....					4.21	2.88	6.09	
						3.18	8.80	
Use of land.....					7.33	3.46	6.72	
						7.37	12.79	
Yield per acre.....	Pounds.	277	168	459				

• Lowest and highest, 6 farms reporting.

Table III shows the nature of the cost data that are being collected for various farm products. The elements or items of cost are expressed, wherever possible, in terms of quantity requirements. Not only averages of cost items but arrays and ranges of costs are calculated in order to bring out the wide variations that exist in crop-production costs. In this illustration (Table III) the data represent the results of a cost of cotton study on 85 farms in Laurens County, Ga. The range is shown by presenting as extremes the average of the 10 farms showing the lowest requirements for each item, and of the 10 farms showing the highest requirements. An important consideration in any comprehensive expression of cost, in which many individuals are concerned, is that of the variations that exist, which are usually lost sight of in a general average. This is well shown by the differences in the various elements of cost between the two groups of farms illustrating range.

To calculate the money cost per acre or per pound of lint cotton from the data shown in this illustration it is necessary to place current prices on the labor, fertilizer, manure, and seed items in order to express the quantity elements in dollars and cents. In the final determination of the cost per acre or per pound of lint, it is important to have in mind the type of cotton production—that is, whether the crop is produced on owned farms by the owners, under the cash-rent system, or under the cotton-rent plan—inasmuch as there is a wide variation on farms in the three tenure groups in the item of land rental, as well as on farms within each group. This is illustrated in the accompanying example under the item "use of land."

FARM FINANCIAL RELATIONS.

During the past year attention in this field has been confined to agricultural insurance—loss by fire, windstorm, and tornado, loss of live stock by death, and loss of crops by hail. Especial attention has been given to the introduction of approved systems of accounts for the use of cooperative insurance companies; the improvement of their management through suggestions as to the most successful and equitable means of raising funds for payment of losses; and the prevention of losses by thorough systems of inspection of risks.

In addition to insurance investigations the budget contemplates the study of a number of economic problems directly affecting the welfare of the farmer. Improvement in the methods of financing and maintaining efficient rural telephone service operated on a cooperative basis demands attention. Effectiveness of our present credit system in aiding landless farmers to become the owners of the land they till, together with the degree of efficiency with which needy farmers are able to secure season-to-season operating capital, are matters worthy of deep consideration. Matters of rural taxation are important. There is a question of double taxation in those cases in which the farmer pays a tax on the full value of his land, half the value of which is covered by a mortgage, and who at the same time is compelled to pay an increased interest charge to cover the tax on this mortgage. The relation of the personal property tax to the improvement of agriculture deserves careful consideration. The general problem of taxation in its relation to the problems of land ownership and tenancy should receive attention. It is proposed that facts be compiled which will aid the correct solution of these rural financial problems.

FARM LABOR.

The farm-labor problem is becoming increasingly serious in the United States. It is especially important that studies be made which will point to the maintenance of an adequate supply of efficient help on the farms if American agriculture is to meet the demands made upon it. It is desired to collect the facts relating to the supply and movement of farm labor in the different parts of the United States and to ascertain the trend of agricultural population in its relation to the future labor supply. Living and housing conditions essential to a contented life for the hired man on the farm, the provision of continuous employment, and the adjustment of the question of compensation for farm labor demand special attention. Continuous employment and satisfactory compensation are closely connected with the problems of farm organization and the introduction of new productive enterprises which will provide a more even demand for labor throughout the year and yield a return which will justify its employment. No funds being available no special work is being done on these subjects during the present year.

AGRICULTURAL HISTORY AND GEOGRAPHY.

The work in this section consists in bringing together the historical and geographical facts which lead to a better understanding of agricultural conditions.

Special attention is given to the history of agricultural development as influenced by geographic and economic forces. Studies of this kind are now being made of sheep, wheat, cattle, and dairying. The purpose of these historical studies is to show the effect of change in prices on production and to show which conditions are temporary and which are permanent in order to interpret present facts and forecast future developments.

The geographic studies show the relation of climate, soils, topography, markets, the character and density of the population, and other geographic facts, to the utilization of land, farm practices, size of farms, and to the kinds of crops and live stock which can be grown with best results in each part of the United States. This work contributes to the solution of problems in farm organization, land economics, and various other lines of research by supplying facts which give breadth of view and balance to judgment.

The responsibility of preparing the Atlas of American Agriculture is assigned to this section of the office, though much of the work is done in other bureaus of the Department of Agriculture. Much information has been accumulated in different bureaus as a result of the investigation of special problems. In the Atlas it is attempted to bring together and organize the best information available regarding the history and present condition of agriculture in every section of the United States.

LAND ECONOMICS.

The relationship of the farmer to the land is becoming a more and more serious problem. Tenancy is increasing rapidly in the best of our agricultural regions. Land values have increased to such levels that it is becoming more and more difficult for the landless man to acquire the ownership of a farm. In fact, speculation in land has pushed values so high in many sections of the country that an ordinary farmer can not earn enough profit on the value of the land to pay interest on the investment in it. Frequently it does not pay to buy land for the purpose of farming it. A recent investigation made by the Division of Land Economics showed that nearly one-half of the large increase in the price of lands in certain sections of the Corn Belt during the past year has gone into the pockets of people who are not farming the land—a large number of them city speculators. Enormous areas of our best farming lands are controlled by absentee owners instead of by the farmer who tills them. The condition is all the more unsatisfactory because the relations between landlords and tenants have for the most part not been adjusted satisfactorily with a view to stimulating good methods of agriculture and the conservation of the soil.

In the semiarid regions of the West is an area of land in extent as great as the original Thirteen Colonies where the conditions under which the land is held are such that there is little effective control over the use of the range. In the Southwest alone losses of livestock aggregating millions of dollars have occurred during the last two years because the relation of the ranchmen to the land precluded any effective conservation of the range in anticipation of drouth. There are considerable areas which are on the border line between farming land and grazing land. No land policy has yet been devised which is sufficiently elastic to provide properly for these alternative uses. In certain sections thousands of farmers have experienced tragic failure during the past few years because they have been induced to settle lands that were unsuitable for successful farming.

In the great areas of cut-over lands and swamp lands no careful studies have been made to determine what classes of land can be economically used for farming and what classes should be reserved for other purposes. Little progress has been made to determine what methods of improvement and utilization will prove most economical. Such questions as those relating to the cost of rendering the land available for use, the present tenure and prices of the land, what agricultural enterprises would prove most profitable, minimum size of farm required to support a family in comfort, kinds of equipment needed and methods of improvement to be employed, sources of credit, marketing arrangements, and conditions of transportation remain largely unsolved. At the present

time settlement of these lands is being promoted by methods which result in an enormous number of failures, so that many sections that are capable of developing a prosperous agriculture have been given an evil reputation which retards their development.

During the past year, with the limited funds available beginnings have been made in the investigation of the following subjects:

- (1) Methods of renting farms in dairy, wheat, and cotton regions with a view of determining what kinds of lease contracts would result in improved methods of farming and a fair division of returns.
- (2) Land values and land speculation in the Corn Belt.
- (3) Relationship of land tenure to use of land in the western ranges.
- (4) Methods of land settlement in the cut-over lands of the Great Lakes region.
- (5) Causes and effects of the increase of tenancy in certain regions—especially in the Cotton Belt.
- (6) Methods by which tenant farmers acquire land.
- (7) Classification of land resources and economical methods of land utilization in the cut-over lands of the Great Lakes region.

Because of the limited funds available the scope of these studies has been greatly restricted. The proposed budget contemplates an increase in the extent and scope of these studies in order that the information may be obtained necessary for the development of land policies that will remedy the serious and increasing maladjustment in the relation of the farmer to the land which he tills.

FARM LIFE STUDIES.

In every effort to improve agriculture, one important question repeatedly comes to the front. How is the life side of farming to be developed and enriched so as to keep step with the upward trend of the economic side of farming? This is by no means a question to be answered lightly, nor is it one to be solved by any single, simple remedy. Prosperity alone on any particular farm, for example, will not solve the life question for the family on that farm. This is true because the satisfactions of life are so largely a matter of community life, community activities, community institutions, and community ideals, all of which are developed slowly and not purchasable with money. In fact, many a successful and high-spirited farmer, on attaining a competence, has left the farming enterprise and farming community for residence in town or city in order to obtain the satisfactions of life which he has earned with his industry and thrift, but which he has failed to find in the country community. His place on the farm is altogether too often filled by a less efficient farmer with a family whose attainments and ideals are undeveloped. Such a turn of affairs just at the time when economic prosperity has been achieved on the farm, is a distinct loss to agriculture as a whole and to the country community in particular.

The deficiencies in country living conditions are many. Moreover the community ailments of our farm populations are in danger of becoming more or less chronic. There are altogether too many sections of the United States, it is to be feared, where the farmer is badly handicapped in his attempt to maintain a thorough-going American standard of living for his family. The serious deficiency seems to be primarily one of institutions—institutions of a nature, moreover, which in town and city have become commonplace. How to furnish our farm population with the adequate social instruments of a full American life is an important matter for inquiry.

In the unstable conditions of family life on the farm, scientific agriculture finds a peculiar impediment to its rapid advance. If the well-known tendency of progressive and successful farmers to leave farming on becoming prosperous should long continue, a still more serious hindrance to modern methods of agriculture would present itself, for tradition and custom rather than up-to-date methods would then quite likely have right of way in farm practice, and business inferiority would menace our rural citizenship. This condition of general rural social instability should be carefully investigated.

Farm-life studies have been designed to inquire into the deficiencies of country living conditions. It has been demonstrated that rural life is susceptible of scientific investigation. There are no lines of research more worthy of Federal support than the scientific study of farm life and the discovery of methods of giving to farm life permanent satisfaction.

Only a small beginning has been made in this important field. Preliminary studies have been worked out on community centers, rural organizations, the social effects of tenancy, and the essential educational basis of a sound country life.

DEMONSTRATION ACTIVITIES.

The end in view in the work of the Bureau of Farm Management and Farm Economics is better farming and better living. It is essential, therefore, that the results of investigation be carried to the farmers. It is also essential that the educational work done through publications be supplemented by demonstration work carried on in cooperation with the States Relations Service.

Farm management demonstration work is now being conducted in 26 States. The demonstrators are maintained jointly by the United States Department of Agriculture and the agricultural colleges.

The farm management demonstrators constitute a trained force available for giving immediate attention to economic problems. The duties of the farm management demonstrators are:

1. To work with county agents and other agencies in bringing to the attention of farmers, in terms of their own farm operations, the principles of farm management.
2. To demonstrate to farmers a practical method of recording, summarizing, and analyzing the farm business to serve as a basis for modifications designed to increase the effectiveness of their work.
3. To demonstrate to farmers the importance of efficient organization and administration of the farm business.
4. To furnish farmers with standards of excellence in farming taken from farms in their own vicinity that will enable each of them to see by comparison the weakness of his own farm organization and the improvements required to secure desired results.

APPROPRIATIONS REQUESTED OF CONGRESS FOR THE FISCAL YEAR ENDING JUNE 30, 1921.

For the prosecution of the work of the Bureau of Farm Management and Farm Economics as outlined above the Congress is asked to appropriate the sum of \$611,990.

It is proposed to use approximately one-half of this amount in ascertaining the cost of producing the staple farm products. About one-fourth will be devoted to the study of land tenure and other land problems. The remainder will be used in carrying on work in farm organization, farm financial relations, farm labor, agricultural history and geography, and farm-life studies.

In asking for this limited sum of money, which is less than 10 cents per farm in the United States, it is recognized that it is not commensurate with the importance of the farm economic problems to be dealt with. It is planned to develop the work gradually on sound lines. In fixing upon the amount asked for expanding the work this year the number of men with proper training who can be secured at this time has been given primary consideration. With the funds requested it is believed that results can be secured such as will lead the Congress to desire further expansion as rapidly as men properly trained for doing satisfactory work in this field are available, to the end that in the course of a few years the Bureau of Farm Management and Farm Economics will be able to meet in an adequate way the demand for farm economic facts.

Dr. TAYLOR. I have brought down this morning a number of copies of the reports of the special committee on reorganization of the Office of Farm Management, so that in case members of this committee are interested they may have copies.

I would like to call your attention especially to the chart in the brief which I have distributed. You have here the figures on the cost of producing lint cotton, and I present this simply as a sample. You see, for the farms covered by the study, the cost of producing cotton in 1913 and in 1918. In the left-hand column you have the cents per pound of lint cotton, and in the right-hand column you will find the number of farmers who produced at these different

costs. For instance, you find in 1913 two of the farms studied produced at a cost of 5 cents a pound, four at 6 cents, but the great numbers were producing at 10, 11, 12, and up to 16 and 17 cents. In 1918 you will find that the costs were generally higher. There was one man producing at 11, one at 12, and seven or eight at 13; but when you get to 20 cents, between 20 and 30 cents, you find more than half of the cotton produced.

I bring this before you to show the wide range in costs and to call your attention to the fact that the average is perhaps not the important thing in cost studies, but getting the range of costs.

In the table at the bottom of this chart you will note the percentage of the cotton raised on the farms covered by the study that was produced below different costs. For instance, in 1913, 91 per cent was produced at 16 cents or below; 77 per cent was produced at 14 cents or below; 56 per cent was produced at 12 cents or below, and only 17 per cent of it produced at 10 cents or below, whereas in 1918 81 per cent of it was produced at 30 cents or below.

In the application of cost figures to the problem of a necessary price, these ranges need to be taken into account, and consideration needs to be given to the question of how high the price needs to be in order to secure the bulk of this product. Obviously, if the price equaled the average cost, all producing at a cost above the average would be producing at a loss; those producing below the average would be making a profit.

Mr. VOIGT. You do not show the average cost of production here, do you?

Dr. TAYLOR. I do not on this statement. In Table II are figures that show the averages. The real purpose, however, is to show the distribution of costs as between labor, fertilizer, ginning, use of land, overhead, etc. And there you see the average was 12.25 cents for 1913 and 23.9 cents for 1918. It is our opinion that the emphasis should not be upon the average but upon the range, and of course it is not to be expected that a price should be high enough to cover the costs of those men who are producing at an exceedingly high cost.

There is another very important use, of course, of figures of this kind, and the matter of first importance is that of farm organization. The men who are producing at high costs need to know the methods that are being used by the men producing at the lower costs. In other words, the cost of production statistics give the starting point for the study of better farm organization and better management of farms.

Mr. ANDERSON. Have you discussed, Dr. Taylor, the method pursued in arriving at these costs and figures?

Dr. TAYLOR. I have not. That can be discussed at this time if you desire to have me do so.

Mr. ANDERSON. Whenever you think best.

Dr. TAYLOR. The method we use when we have a single crop is a less expensive method than where we have a number of crops combined. It has not been the object in getting cost figures in cotton to get all of the information with regard to every activity on that farm, for the simple reason that it costs too much to get the material.

In 1913, over 80 per cent of the income on the farms studied came from cotton and so we concentrated upon getting the information for cotton by what is called the survey method. Each of the farms was visited and the man who was making the survey, with his blanks before him, asked questions and got together all the information with regard to the receipts and expenditures (the total receipts and expenditures) on that farm. Special studies of cotton are being made which will show the amount of labor that was put in on cotton, but it is not attempted to find out what the man was doing all the rest of his time; merely the time he spent on his cotton. A few of the elements, of course are looked into—the labor costs, the fertilizer costs, the ginning costs, and charges for use of the land.

Mr. ANDERSON. May I ask you a question there without interfering with your plan of procedure?

Dr. TAYLOR. Yes, at any time.

Mr. ANDERSON. I take it from what you say that these figures are not arrived at from accounts kept by those people concurrently with the doing of the work, or the incurring of the expense?

Dr. TAYLOR. No elaborate records. These are based upon the survey method. There are several methods that can be used in getting costs. We have found the cost of securing the figures on a farm vary greatly according to the method we use. What we want to do is to use a method that is sufficiently accurate for the particular subject involved. Now when we make a cost-accounting study in a region where there is a great diversity in the farm business, and there are three or four important, separate, enterprises, then we give more attention to detailed reports of the labor, so that we get a report of exactly what was done by each worker each day in the year, in order that the labor costs may be distributed to the different enterprises. Where, however, the major part of the labor is put upon one enterprise, we distribute the entire costs of the labor according to the receipts. In this particular case, I should explain that these figures for 1913 were dug up out of surveys that were made in Sumter County, Ga., for the year 1913 and the materials in the office were re-worked with a view to getting them in this form. And they are based upon the survey method, which is not as accurate in every detail as the detailed cost-accounting method, which is in use at the present time on about 150 farms, more largely in the regions where farming is diversified.

Mr. HUTCHINSON. Do you consider the production in your cost system at all? In other words, suppose I raised a bale of cotton to the acre in 1918 and in 1913 I only raised half a bale to the acre.

Dr. TAYLOR. Yes. The variation in yield is one of the principal occasions of variation in cost per pound of lint.

Mr. HUTCHINSON. That is what I supposed.

Dr. TAYLOR. Yes. So that when you get the costs for one year on one farm you do not have what is necessarily the cost for the next year on that farm. There is not only a wide range from farm to farm but a wide range on a given farm from year to year.

Mr. HUTCHINSON. You raised a great deal less cotton in 1918 than you did in 1913?

Dr. TAYLOR. Mr. Peck, what are the comparative yields?

Mr. PECK. It was slightly less on these farms for 1918 than for 1913—on the farms pictured here.

Mr. HUTCHINSON. Then you add your cost of fertilizer and labor to the cost of producing that cotton, do you not?

Dr. TAYLOR. The cost for fertilizer per unit of cotton would be greater in 1918 if they used as much fertilizer.

Mr. HUTCHINSON. I understand.

Dr. TAYLOR. But I think they did not use as much fertilizer.

Mr. HUTCHINSON. That is the reason for this lower production?

Dr. TAYLOR. It was, perhaps, one factor.

Mr. HUTCHINSON. It really depends on production how much you get for costs?

Dr. TAYLOR. Yes.

Mr. HUTCHINSON. My experience is that you will find one farmer is very successful and another one is not, and you must add that to the cost of production.

Dr. TAYLOR. Our effort is to portray the facts as they are, and that is what we are trying to do. We are not trying to find—we doubt if there is such a thing as the one cost of producing cotton. What we want to do is to portray the facts which will show there is a great diversity in costs of producing cotton and, taking that as a starting point, there are two or three important things to consider.

The one of first importance is farm organization, with a view to bringing up those farms with such high costs. And that is one of the major functions, as we look upon our work. Table I is a detailed table of these costs distributed on the basis of whether or not they were white owners or white renters, colored owners or colored renters, and you find the range of costs in both instances very similar.

In Table III we attempt to present what we call the basic requirements in producing cotton.

In studying the costs for 1918 on over 800 farms in 10 different areas in the Cotton Belt, the results of which are not yet available, we got at the number of man hours required, the number of horse hours required, the amount of fertilizer, manure, seed, sacks required, the charge for ginning, insurance, taxes, machinery, overhead, and the use of land. Having gotten those elements of costs, we are now getting the production for 1919. We got the acreage last spring and now we are getting the production per acre on those same farms. As soon as we get that material in we are able, on the basis of those facts, to figure the cost of this year's crop on those farms. Once we get this work started the amount of work each year is very much less.

Mr. ANDERSON. I dislike to interrupt you, but I would like to inquire while I have these things in my mind, if it does not disturb you—

Dr. TAYLOR. It does not disturb me at all.

Mr. ANDERSON. Do these studies indicate anything with reference to the relation of management to cost? I mean the relation of management to cost in its relation to production?

Dr. TAYLOR. There are certain things very clearly indicated in this Sumter County study, in comparing management in 1913 and 1918. One important change is that the percentage of the total income from cotton fell more than 10; that is, it was above 80 and it fell down to 70, or below 70. In the meantime, the velvet bean had come in and they were producing more hogs and better hogs. In other words, the educational campaign which had been going

on there for a more diversified type of farming was becoming effective, and that was clearly pictured in the comparison.

A study of this would, of course, take in specific cases. You take the farmers that have the high cost and those with low cost and you will find part of the difference is due to yield. Then the explanation of the difference in yield in part goes back to nature and in part to the character of the operations, the way in which the farming is carried on; for instance, a type of farming that keeps the soil in good condition as against the type of farming that reduces the soil and results in low yields.

Mr. ANDERSON. What I am getting at is whether these cost figures are sufficiently indicative to point out deficiencies of management which would, if corrected, result in greater production with smaller cost?

Dr. TAYLOR. That is exactly the thing they are intended to do. And as these reports are analyzed more and more carefully from year to year, the skill with which we are able to point out the deficiencies in the management and make suggestions with regard to better management is ever increasing. Of course, when we go into a given county and make a survey and find certain conditions, we feel we must be rather conservative about giving advice until we have studied the matter long enough to understand the whole situation.

Mr. ANDERSON. Then let me ask you this question: I take it from what you have said that there is at present no cost system developed which will give you exact data upon which you can determine the deficiencies of management and so forth. What you are seeking to do primarily, at first, is really to work out a system of cost accounting?

Dr. TAYLOR. That is the first and fundamental thing and the work this year has been in samples by different methods with a view to finding the methods that apply to particular types of farming. We do not expect when the best systems have been developed that the same system will be used for all types of farming.

We have just this fall started studies in the cost of fattening beef cattle. We have these started in five States. The method here is to go into a community and take a general farm survey of 100 farms which give the general view of the agriculture of that region. While taking that survey, we get detailed information regarding those farms. From this number 25 are picked out, on which they are going to feed two carloads of cattle or more, and, of course, keep hogs, during the winter; that is 25 farms are selected and a man is employed to make it his entire job to continually visit those 25 farms to keep the detailed facts up to date, so we will know exactly what has been fed to those cattle and the labor requirements on the cattle and all of the cost facts relating to the fattening of those cattle from the time the cattle are put in the feed lot and what they weighed when put in the feed lot, until they go on the scales and are sold.

Mr. LESHER. Have not some of the State colleges been doing that work?

Dr. TAYLOR. Yes.

Mr. LESHER. For years?

Dr. TAYLOR. Cornell, Minnesota, Wisconsin, and Illinois have been doing work of that kind for several years. Mr. Peck, who is

here this morning, who was at the University of Minnesota, and who for several years had charge of the detailed cost-accounting work there, and has published a very considerable amount of work—the best work, I think, that has been issued from any agricultural college on costs—has been brought to Washington to take charge of all these cost studies.

Mr. LESHER. Don't you think it can be studied better at these colleges than it can on the farm?

Dr. TAYLOR. You mean on the college farm?

Mr. LESHER. They can keep the costs, prices, and everything that enters into it?

Dr. TAYLOR. Of course, the costs at college farms are very abnormal for various reasons, because experimental work is in the foreground rather than production for profit. But that leads me to call your attention to the fact that in these cost studies, in accordance with the recommendations that were made to the Secretary last spring, the effort is to cooperate with the colleges as far as possible. And these beef-cost studies that are being carried on at the present time are in cooperation with the colleges on a 50-50 basis, so that the man who is doing the detail work is constantly in close touch and under the direction more or less of the man in charge of the farm-management work at the colleges. Thus there is no duplication of work, but a harmonious relationship between the Department of Agriculture and the colleges in carrying on this work.

We have exactly the same beef-cattle feeding project carried on in five States at the present time, which also involves the hog feeding, so that the results in those five States can be put together. The difficulty is, with the funds available we were not able to start this on an adequate scale, but we decided we would start in with a quality of work that would be satisfactory, with the hope that we would be able to expand it the second year. Furthermore, we feel it will be necessary to carry these beef studies through a period of five years in order to get adequate results.

Mr. TINCHER. Suppose you had had sufficient funds and had been able to know the exact cost of production of all meat products, say, for 1918—I wish you would put in the record just what advantage that would be; how you would use that information to advantage?

Dr. TAYLOR. That material would have great value from at least two points of view. From the standpoint of the general public, if we had adequate and satisfactory figures of cost, it is believed that there would be greater willingness for the farmer to receive a fair price for his product; from the standpoint of the farmer, that he would be more likely to get a fair price. And if he gets a fair price, he is happy to continue regularly in the business. So that from the standpoint of the farmer and consumer, it will run more evenly from year to year.

Mr. TINCHER. If you had had the exact cost of production of those products in 1917 and the public had had the full information, or had had it in 1918 even, and the public had been fully informed of the costs of producing all those articles, would not that have had a tendency to cause dissatisfaction with the farmer in 1919?

Dr. TAYLOR. On the ground that—

Mr. TINCHER. That the increased cost has been so much?

Dr. TAYLOR. Of course, the costs to the farmer have increased rapidly during the war period. Wages followed the prices up. The cost of raw material of various kinds followed up. So that the costs have been rising all of the time. Since you ask that question, I want to proceed to say, however, these cost studies have value not only from the standpoint of the relation of cost to price but also from the standpoint of the better organization of the farm, and each individual who is producing at a cost that classifies entirely too high has his attention at once called to the fact and it awakens him to the necessity of reducing his costs. And that is the starting point for the work of reorganization which is fundamental in the work of the Office of Farm Management.

Mr. McLAUGHLIN of Michigan. How is this called to their attention?

Dr. TAYLOR. In the case of the specific farms where the records are kept of course he gets the information for his farms of exactly what his costs are, and by having these records published he sees what other people's costs are.

Mr. McLAUGHLIN of Michigan. How long after they are taken is it before they are published?

Dr. TAYLOR. That depends upon a variety of circumstances.

Mr. McLAUGHLIN of Michigan. How long after they are taken are they published, I ask?

Dr. TAYLOR. I will say this, that the materials regarding the crop for 1919 are not all in the office as yet. The basic factors of cotton costs are in the office, so that as soon as we get the yields on each of those farms we will have the material. Then, the amount of time that is required for tabulating means a few months, and I should say that by the 1st of March—is that too early, Mr. Peck?

Mr. PECK. No.

Mr. TAYLOR. By the 1st of March the cost statements for those 800 cotton farms will be ready for publication?

Mr. PECK. Yes, sir.

Dr. TAYLOR. That will be about the time he starts in on the production of his next year's crop.

Mr. ANDERSON. How many cost of production studies are being followed now; I mean what particular lines do you follow? You referred to cotton?

Dr. TAYLOR. Yes.

Mr. ANDERSON. And to beef production. Is there anything else?

Dr. TAYLOR. Sugar in Utah and Idaho; the cost figures on sugar. Then I mentioned the beef-cattle studies, and tobacco is one project which is in cooperation with the State of Kentucky, or about 150 farms. That is being carried on by the more detailed method, where a man continually visits those farms.

Mr. ANDERSON. You expect to extend those studies this coming year to other projects?

Dr. TAYLOR. The expectation is first to expand to an adequate basis the work that is already started. For instance, these beef studies we want to expand those to three units in each State, so that instead of 125 farms in five States we will have three times that many; that is, instead of 25 farms in each State, we will have 75 farms in each State. And the wheat studies are entirely inadequate at the present

time; we were unable to get records from more than 600 farms this year, which is entirely inadequate.

In addition to the expansion of the work that is started, the additional thing we want to do, one of the special things we want to do, is to get some new material on the cost of farm power. At the present time, as you know, there is a very great demand on the part of the farmers to know the relative costs of horse power and tractor power, and projects are being planned and the States are glad to cooperate in carrying on studies along that line.

Mr. ANDERSON. I would like to ask where the wheat studies are being conducted or will be conducted?

Dr. TAYLOR. The wheat studies are just in progress now for the 1919 crop. Can you name the States, Mr. Peck?

Mr. PECK. In the winter-wheat area, Kansas, Nebraska, and Missouri; in the spring-wheat area, Minnesota, North and South Dakota.

Mr. ANDERSON. What part of Minnesota?

Mr. PECK. I believe Clay and Traverse were the two counties.

Mr. McLAUGHLIN of Michigan. These units are 25 farms each in the beef studies?

Dr. TAYLOR. In the beef-cost studies, one man is looking after 25 farms.

Mr. McLAUGHLIN of Michigan. And you have a man for each unit?

Dr. TAYLOR. Yes; we have a man for each unit and we have just one unit in the State at the present time, and we would like to have three locations of that kind in each of those States.

Mr. McLAUGHLIN of Michigan. You were speaking of the cost of production of sugar.

Dr. TAYLOR. Yes.

Mr. McLAUGHLIN of Michigan. You are working in Utah and Idaho?

Dr. TAYLOR. Utah and Idaho this year.

Mr. McLAUGHLIN of Michigan. I presume the sugar manufacturers all operate in about the same way. They make a contract with the farmer to deliver his beets at so much a ton?

Dr. TAYLOR. Yes.

Mr. McLAUGHLIN of Michigan. Regardless of the cost of production to the farmer, beets cost the manufacturer of sugar just so much?

Dr. TAYLOR. Yes.

Mr. McLAUGHLIN of Michigan. And he must keep a very accurate account of the cost of production of sugar from the point of the purchase of the beets. What can you do in that line?

Dr. TAYLOR. What we do is to study the cost of production on the farm, so that the farmer may have some basis for determining whether or not he can produce beets at a price which the factory will offer.

Mr. McLAUGHLIN of Michigan. Can he not tell at the end of the year when he gets the money from the manufacturer whether he has made any money or not?

Dr. TAYLOR. If he is producing beets and nothing else, it is a relatively easy matter for him to know whether he has made any money or not; but if he is producing beets as one crop in combination with a large number of other crops he can not tell whether he has made or lost money on any one particular enterprise without the cost studies.

Mr. McLAUGHLIN of Michigan. What are the manufacturers paying the farmers in Utah for their beets?

Dr. TAYLOR. I believe \$10.50 was the basic price. I have not seen their contracts. They probably get \$1 a ton for every cent sugar sells for above 9 cents. That is the way the contracts are drawn in Wisconsin; so that the price varies with the price the factory gets for the sugar.

The CHAIRMAN. How are those prices arrived at?

Dr. TAYLOR. The price was offered by the factory.

The CHAIRMAN. Is it some agency of the Government in Washington?

Mr. McLAUGHLIN of Michigan. It is a matter of contract?

Dr. TAYLOR. It is a matter of contract.

The CHAIRMAN. The Government does not exercise any authority over the matter?

Dr. TAYLOR. Not as I understand it.

The CHAIRMAN. It has not for the current year?

Dr. TAYLOR. As I understand, there is no control over that; it is simply a private contract.

The CHAIRMAN. Do you know what the increase in price made to the farmers for beets has been during a series of years?

Dr. TAYLOR. Beets were produced in Wisconsin for \$4.50 a ton before the war.

The CHAIRMAN. The contract price between the farmers and the manufacturers has not been as low as that for a long time.

Dr. TAYLOR. It has gone from \$4.50 up to \$6, and then it jumped to \$10.

The CHAIRMAN. How long ago was it \$4.50?

Dr. TAYLOR. That is 10 years or so ago. I grew a crop of beets in 1917 and I got \$6 a ton that year. The crop was grown by a share man on my farm this year—

The CHAIRMAN. Was that on the basis of the sugar content?

Dr. TAYLOR. Without regard to the sugar content. The factory furnished the seed and charged for it, of course, so that they, in a way, controlled the kind of beets that were being grown, and it was without regard to the sugar content.

The CHAIRMAN. Were all contracts the same as that?

Dr. TAYLOR. Probably not.

The CHAIRMAN. I supposed there was an increased price paid to the farmer depending on the percentage of sugar in the beets?

Dr. TAYLOR. That was tried in Wisconsin, and the farmers found a great deal of difficulty in getting a satisfactory test as to the sugar content of the individual crops. And so in that case they went back to paying on the basis of the net weight per ton without regard to the sugar content.

The CHAIRMAN. And then an increase of so much per ton as the price of sugar in the market increases?

Dr. TAYLOR. Yes; that is in the contract for this year.

Mr. VOIGT. When you find a farmer whose cost is excessive in producing cotton, wheat, or some other crop do you go back to him and try to show him what the cause is?

Dr. TAYLOR. That is exactly the idea, through the farm management and demonstration work, through the States relation service which is cooperating with the office of farm management. The man

who is in charge of farm management demonstrators has his office on the same floor with mine and is closely connected with the Office of Farm Management, makes it his business to keep in close touch through the county agents and with the farmers throughout the country and to get them to keep accounts themselves. Ultimately this job will be completed when every farmer has been taught to keep his own accounts and see where his difficulties are, but that will take a very great deal of time.

Mr. VOIGT. Do you go back to the individual farmers on whose farms you have kept account of the cost of producing a given crop?

Dr. TAYLOR. We send the result of his figures back to him. The research workers do not make it a special business to go back and talk with each one of those men. That is the demonstration phase of the work.

Mr. VOIGT. Have you any knowledge whether the individual farmers who produce at too high a cost are visited or written to by someone and the cause pointed out to them why the cost is too high?

Dr. TAYLOR. The analysis of these results is sent back to each one of those farmers. But when it comes to visiting each one of those farms, our attempt is to get back to them through the farm-management demonstrators and the county agents, who are the personal contact men. And I wish to say that the special work of the farm-management demonstrators is to stimulate, at the present time and has been for several years, accounting on the part of the farmers so that they may know what they are doing and in each case to point out to them the way in which they are falling down. It is obvious, however, with several million farmers in the United States, it is only individuals here and there who can be touched by people in the Washington office. But through cooperation with the State organizations and the county agents, it is possible to touch more and more of the head men who, in turn, touch their neighbors.

Mr. VOIGT. Say, for instance, in 1918 you found that there were a number of farmers whom it costs 30 cents a pound to produce cotton.

Dr. TAYLOR. Yes, sir.

Mr. VOIGT. Do those men who produced that 30-cents-a-pound cotton find out through you, or from you, that you have figured out that it cost them 30 cents, and do you tell them where the difficulty is?

Dr. TAYLOR. That is our effort; yes. Of course, I have been with the office only since the 1st of April so I do not know what was done with regard to these particular men. I wish to say we reworked the material that was in the office, went back to the original records that were taken, in order to get the material in this form. I think it was figured on terms of average in the first instance, instead of showing the range in costs by individuals.

Mr. HEFLIN. I know a farmer in my county who produced 50 bales of cotton in 1918; this year the same farmer produced 35 bales. It cost him more to produce 35 bales this year than it did to produce 50 bales last year.

Dr. TAYLOR. Very probably. Now, with the materials we have collected—

Mr. HEFLIN. The boll weevil is in this section I am talking about.

Dr. TAYLOR. Yes. That is a factor in the cost per unit of production.

Mr. PECK. I just want to state that, when a study like this is completed, each farmer receives a detailed statement of his own business, with a letter pointing out certain factors that appear to make that cost higher than the cost that his neighbors have.

Mr. VOIGT. That is what I am trying to get at.

Mr. PECK. Yes; each man gets a statement.

Dr. TAYLOR. He gets it—not simply him own, but the ranges of the others also.

Mr. PECK. The comparison of his farm business with the others.

The CHAIRMAN. And the variation is due to the elements, the cotton boll weevil—

Dr. TAYLOR. Yes; the cotton boll weevil.

The CHAIRMAN. Not altogether to the man himself?

Dr. TAYLOR. No.

The CHAIRMAN. Would you be able to give advice for overcoming difficulties caused by the elements?

Dr. TAYLOR. Advice with regard to the whole problem of growing cotton, of course, is not attempted by the Office of Farm Management.

The CHAIRMAN. In line with the case cited by Mr. Heflin, in my section of the country last year we produced about 20 bushels of wheat to the acre; this year probably 8 to 10, less than half of what we produced last year. It cost practically as much to produce 8 bushels as it did to produce the 20, and we got just as much for the 8 bushels, per bushel, as we did for the 20 last year. Hence the cost this year is much more than it was a year ago. The cotton-boll weevil and all elements enter into it.

Dr. TAYLOR. Yes. Now, the purpose of getting cost figures is to get all the facts of cost and to lay them clearly before our minds in order that we may better judge what to do.

The CHAIRMAN. I am sorry to add that we have had such attacks for 40 years in my section of the country. We have had the black rust. The object is to know how to deal with it.

Dr. TAYLOR. The Office of Farm Management does not deal with those phases of the problems. Those questions of plant pathology and entomology, etc., are dealt with by the various bureaus having charge of those specific problems. Our problems relate primarily to the questions of farm organization and farm finance and the economic problems of organization. Even in a given year, with given conditions to meet, some farmers do very much better than others.

The CHAIRMAN. Under the same conditions?

Dr. TAYLOR. Under the same conditions. And the hope is to bring those who are lagging behind up to a higher level and then to enable those who are in the lead to see more clearly how to adjust themselves to market conditions, labor conditions, and all sorts of conditions in order to produce at a lower cost and get a larger margin of profit.

Mr. McLAUGHLIN of Michigan. How many people are employed in the field—the entire number—in this line of work?

Dr. TAYLOR. I will ask Mr. Peck to answer that question; that is a line of work of which he is in immediate charge.

Mr. PECK. Counting the cooperative work of the States where the States contribute 50 per cent of the cost of conducting the investigations, this past year, roughly—

Mr. McLAUGHLIN of Michigan. Have you not the exact number? Mr. PECK. Our maximum has been 30; that is, there were different numbers employed at different times. This work was started in the spring. At one time we had 11 scientific men on the cotton study, and four went from there to the wheat study. There may be three or four weeks on one of those studies where the State men have come out and helped us to take the records; so it is rather hard to say the exact number carried through the season. I would say 30 would be the greatest number at one time employed on all the cost studies we are making.

Mr. McLAUGHLIN of Michigan. How many are employed in Washington?

Mr. PECK. The total number of the whole force in the cost of production and farm organization section is 58. That counts the scientific men, clerks, and stenographers that are on these particular projects.

Mr. McLAUGHLIN of Michigan. It takes 58, then, to tabulate the work done by 11 or 30?

Mr. PECK. No; the 58 includes all the people who have been employed in these sections. That counts in the scientific men, it counts in these men I have given you as 30 at various times. We have 17 straight clerks and typists, and we have a man in charge of the crop work, a man in charge of the live-stock work, and a man in charge of the farm-power investigations. We have 17 straight clerks who do nothing else but tabulate the field records, and then there are certain times of the year when the men in the field do part of the tabulating and summarizing and preparing the data for publication.

Mr. McLAUGHLIN of Michigan. It takes 58 employees, officers, and so on, in Washington to tabulate the work of 30 in the field?

Mr. RUBEX. I understood him to say those 30 were included in the 58.

Mr. PECK. Yes.

Mr. McLAUGHLIN of Michigan. I did not get that—

Mr. RUBEX. Let us see whether he means that or not?

Mr. PECK. Part of these 30, the 30 employed here the year round, whose whole salaries are paid out of our funds, are included in the 58. They are only in the field part of the time; we do not have men in the field the year round.

Mr. TINCER. How many do you have that do not go in the field, who stay here?

Mr. PECK. These include the 17 clerks who do not go in the field, and there are perhaps only two or three besides those who do not go in the field.

Mr. TINCER. Out of the 58 there would be 20 that do not go in the field?

Mr. PECK. Yes; I would say that. I believe the number is tabulated in the printed report.

The CHAIRMAN. You are asking for an increase of appropriation. The appropriation for last year was \$302,590 and this year you estimate \$611,990.

Dr. TAYLOR. Yes, sir.

The CHAIRMAN. An increase of \$309,400. How many people will be employed next year?

Dr. TAYLOR. The major part of that is for extension of the cost of production and farm organization work.

The CHAIRMAN. Will you state just the number to be employed next year while you are on that?

Dr. TAYLOR. I have in my hand the way in which it is planned to distribute these funds next year. To live stock cost studies, which will include the beef cattle in the Corn Belt, that is the fattening of cattle, some studies on the range, and the sheep and wool studies, \$50,000; cotton cost studies, \$20,000; wheat cost studies, \$20,000; milk cost studies, \$25,000; sugar costs, \$10,000; fruit costs, \$15,000; tobacco costs, \$5,000; farm power studies, \$50,000. And the detailed cost studies which will be made in this region—

The CHAIRMAN. How much for farm power?

Dr. TAYLOR. \$50,000. And for the detailed cost accounting, where the farm is of a mixed nature and we can not get at the cost of one separate thing so well, the work we have called detail cost studies, \$50,000. That accounts for \$245,000 to be expended in these cost studies.

Mr. ANDERSON. Are you now engaged upon studies on this milk proposition?

Dr. TAYLOR. We have no studies in milk, excepting some cooperative studies just being started.

Mr. ANDERSON. How about fruit?

Dr. TAYLOR. The cost of fruit in New York has been studied to some extent this last year.

Mr. ANDERSON. Have you started the farm-power project?

Mr. TAYLOR. The farm-power project has not been started; it is just planned. There was a conference held in Chicago in the fall, and it was urged by all classes interested in the farm-power question that cost studies be made as a basis of comparing relative profitability of using different forms of power.

Mr. ANDERSON. These detailed cost projects are now under way?

Dr. TAYLOR. They are now under way in three States in cooperation with the colleges. About 150 farms are being covered by that method at the present time. Those are usually on a 50-50 basis.

Mr. RUBEY. Do you expect to take up each one of these projects and tell us what you are going to do under each?

Dr. TAYLOR. I am glad to have questions.

Mr. RUBEY. I would like very much to have you tell us what you expect to do under the farm-power proposition, whether or not, in connection with that, you are going to take up the question of water power on the farm or just simply motor power?

Dr. TAYLOR. The major problem is the pulling of machinery—that is, the major thing is to know this, to what extent is it going to pay the farmer to dispose of his horses and get a tractor. That is a thing that millions of dollars are being expended for at the present time, and we want to give the information that will enable this new move to be taken along intelligent lines.

Mr. McLAUGHLIN of Michigan. Where you are carrying on these different lines of work in the States, you have experts in each line, do you?

Dr. TAYLOR. Yes. Of course the same man may be working on one line of costs a part of the time and on another line part of the

time; that is, the detail man. We have one man, for instance, who specializes on the cost of producing these crops which are special crops, like cotton, sugar beets, and so forth, where a method can be used that requires less detail than where you have to get all of the information from the whole farm. And now on the farm power studies the aim will be this, to get enough records from specific farms to show the kind of power that is needed at different times of the year, what percentage of the power is used in drawing wagons, what percentage in harrowing, cultivating corn, plowing, or disking, and at what time of the year is this demanded. Then our aim is to see how much of this can be undertaken by a tractor, for instance, rather than by horses; which it is physically possible to do. Some of this work can be done by horses and not well by tractors; other parts of the work can be done by tractors. Then if we find, for instance, a part of the work can be done by tractors a certain part of the year and all of the horses have to be kept in order to provide power at another time of the year, so that the farmer can not reduce the number of horses by keeping a tractor, it is obvious the total cost of power on the farm would be increased by getting a tractor.

The object is to make such a study as will show how the power required on the farm can be secured at a reduced cost.

Mr. TINCHER. Have you had any appropriation before for the farm power project?

Dr. TAYLOR. There has been no appropriation for farm power.

Mr. TINCHER. Don't you think a good safe way would be for the Department of Agriculture to simply issue a statement to the farmers that the best power so far, the most reliable and durable power, is the mule, and then let the machine companies that are pushing tractors advance their interests (and they will do that quick enough, or too quick in most instances); for us just to stand for the mule and save this \$50,000 until there have been further developments?

Dr. TAYLOR. Is it not entirely probable that by saving that \$50,000 we are asking for farm power studies you will leave it entirely to the manufacturers of tractors who have but one interest (and that is to sell their tractors), to give the information to the farmer, instead of the department providing it for the farmer?

Mr. TINCHER. My idea was to take a definite stand, without spending \$50,000, and to advise the farmer to stick to the mule and just save \$50,000; say to him "You stick to your mule," and then let them press their claim. We can do that without spending any money.

Dr. TAYLOR. Then, in turn, the manufacturers will say we have made the statement without any investigation whatever, and they will be in a position—

Mr. TINCHER. You tell them you have made an investigation, that you talked to one of the members of the Committee on Agriculture who knew something about it, and he was willing to take the responsibility of advising them to stick to the mule and save money. [Laughter.]

Mr. RUBEY. You might state, in that connection, that the gentleman had talked with Mr. Tincher of Kansas. [Laughter.]

Dr. TAYLOR. I have no doubt but that the gentleman knows exactly what to do on his own farm—

Mr. RUBEY. We from Missouri, of course, are with the mule. At the same time we realize that a great deal of this work can be done better by tractor power in that State than it can be done by the mule.

Mr. McLAUGHLIN of Michigan. In how many cases do you use the same man for different kinds of work? You have a wheat investigation and a feeding investigation, and a beef investigation——

Dr. TAYLOR. I will ask Mr. Peck to answer that question, since he is in immediate charge.

Mr. PECK. We are attempting to build up a corps of experts who can meet various problems. I do not care to have a man just on wheat and one on cotton and one on cattle and one on hogs, because it is not conducive to efficiency. The same man may be the cotton man this year, and then part of the time he may be on wheat and also on sugar beets.

Mr. McLAUGHLIN of Michigan. Those sections of the country where those three products are raised are widely separated.

Mr. PECK. Yes.

Mr. McLAUGHLIN of Michigan. A man can not be doing all those things at the same time.

Mr. PECK. Exactly.

Mr. McLAUGHLIN of Michigan. But in a beet-producing State, a wheat-growing State, and a corn-growing State those activities are all carried on at the same time by the same farmer.

Mr. PECK. In the survey method we have to visit the farm immediately after the end of the year to take the previous year's record; that is under the survey method. In the detailed accounting method we have to have a man in the State all the time to visit those farms regularly. That is the difference. But one can make a wheat study by the survey method and spend two or three months making that study.

Mr. McLAUGHLIN of Michigan. Is that man while engaged those two or three months doing anything else?

Mr. PECK. No; he gets the cost of growing wheat and its relation to the whole farm business on the wheat farm; that is all he does.

Mr. McLAUGHLIN of Michigan. And somebody else gets the data on the same farm for the production of beets?

Mr. PECK. No; on the special crops we pick out farms that are specializing on that product. On the big wheat farms we do not study beef, for example.

Mr. McLAUGHLIN of Michigan. Beef, however, is produced in connected with the corn farms?

Mr. PECK. Yes; perhaps as a secondary consideration to the corn production. That is another proposition. If we were to study corn, we probably could combine the studies very well; that is, the man who visited the farm right along on the beef could get the facts as to corn. But these special crops like sugar beets, cotton, and wheat are studied on farms that specialize; that have a larger percentage of their receipts from that crop than any other enterprise.

Mr. LESHAR. You get the data from the farmer—the man on that farm?

Mr. PECK. Yes. We take the same man, as I say, who makes the cotton study during three months of the period and send him immediately from cotton to wheat to take the wheat records from the wheat farmers.

Mr. McLAUGHLIN of Michigan. There are many farms, in the aggregate a very large number, that are specializing in wheat?

Mr. PECK. Yes.

Mr. McLAUGHLIN of Michigan. But, unfortunately, a larger number are engaged in general farming, growing wheat, growing corn, fattening stock, and engaged to a more or less extent in producing milk.

Mr. PECK. Yes.

Mr. McLAUGHLIN of Michigan. Do you have different men for those different lines of study?

Mr. PECK. For the mixed types of farming you mention, that is, where we establish our cost-accounting studies, or cost-accounting routes, in cooperation with the State, we have a man who lives entirely with the farmers for the entire year and keeps the detail records on all the various products. That is the distinction to be made between the survey and the detailed cost-accounting method of investigation. Detailed cost accounting is where we have the reports kept by the farmer and the statistician, or route man, the year round.

Mr. McLAUGHLIN of Michigan. I am very glad you have found a man who can do two things. The difficulty hitherto has been that we have had to have an expert for each particular line of work.

Mr. PECK. That would be a mistake in our line of investigational work.

Mr. JACOWAY. Have you men in the department who are experts on the growing and culture of wheat and beets and on cotton also?

Mr. PECK. Yes; in the separate bureaus we have men on the cultural growing of those crops.

Mr. JACOWAY. Does any one man in your department understand all of those different items?

Mr. PECK. I would not want to say—

Mr. McLAUGHLIN of Michigan. This man does not instruct as to how to best grow those crops; he just takes the actual cost of production, regardless of how the work was done; he ascertains how much it costs.

Mr. PECK. Ours is just the accounting work.

Mr. McLAUGHLIN of Michigan. Then they have another man to teach the farmer how to grow corn, and another man to teach him how to grow potatoes, and another man to teach him how to grow wheat; but no one of your men can do two kinds of work?

The CHAIRMAN. Have you in mind investigating and ascertaining the relative merit of every make of tractor so as to advise what tractor to buy by testing out each make?

Dr. TAYLOR. Our idea is not to make a special study with regard to each tractor, but to study the power demands of the farm at the different times of the year for different kinds of work, to see to what extent a tractor that operates successfully could displace horse labor. And then the next question is to find how much more or less it costs to perform that work by the tractor or by the additional horses that would have to be kept. That is the specific advantages that we see in order that we may answer the question under what conditions will it pay a farmer to get a tractor, if he can get a good one and knows how to operate it.

The CHAIRMAN. But, in your opinion, is there not as much variation in the value of the tractor as there is in the value of the crop?

Dr. TAYLOR. Exactly.

The CHAIRMAN. One type may last 30 days and another may last for a season?

Dr. TAYLOR. It is not our intention to make a study of the different types of construction of tractors.

The CHAIRMAN. What value will the information be unless you can advise as to what tractors will do?

Dr. TAYLOR. There are other sections of the Department of Agriculture that deal with the tractor from the standpoint of construction.

The CHAIRMAN. I am afraid we would be charged with duplicating this line of work. What I want to get at is the line of study you pursue.

Dr. TAYLOR. It is the cost aspect of it, the way it fits in to the whole farm organization, that we expect to deal with. What we propose to do under this project will not duplicate in any way the work of any other branch of the department.

The CHAIRMAN. Have you made any investigation as to the advisability of substituting tractors for the mule, as suggested by Mr. Tinchler?

Dr. TAYLOR. The Department of Agriculture has not carried on any investigations in that line.

The CHAIRMAN. I understood investigations were made and reports issued.

Dr. TAYLOR. From the detail cost studies that have been made in Wisconsin, Illinois, and Iowa through a series of years past (a few detail cost accounts have been kept on a few farms), it is possible at the present time to analyze the labor demands, because they kept the demand for horse labor each day in the year right through and showed what those horses were doing, and then we are able to answer the question, "Can that work be done by a tractor?" And by studying those reports we got a notion of the general way in which the matter can be studied if we had the up-to-date facts. But none of those studies at the present time, the ones that were made in the past, answer the question, nor were they intended to answer the question, with regard to the relative cost of power by the tractor and by the horse.

Mr. TINCHER. Seriously speaking, do you not think it would be a safe policy for the Department of Agriculture to advise against the purchase of tractors? Don't you think there are 10 tractors purchased where there ought to be 1, and don't you know and realize that the trouble the farmer is having now is paying his tractor bills? That is the situation not only in one section of the country, but in all the United States.

Dr. TAYLOR. Our desire is to be open-minded on this question and to make it our business to get the facts and lay them before the public rather than to go into the investigation with our conclusions already drawn.

The CHAIRMAN. Is it not a settled fact that the tractor is impracticable on the small farm, although it may be practicable to use it on the larger farm?

Dr. TAYLOR. I think such statements have been issued by different agricultural colleges that would indicate that the farm must have magnitude enough to give scope for the tractor.

The CHAIRMAN. There can be no question about that.

Dr. TAYLOR. Yes; there can be no question about that.

The CHAIRMAN. You can not farm with a tractor alone. You must have horses with the tractor; and if one has a small farm that can be operated with two or four horses, it would be useless to go to the expense of buying a tractor and allowing the horses to remain idle, would it not?

Dr. TAYLOR. Yes.

Mr. JACOWAY. Doctor, does your statement show how many acres were planted in cotton in the South last year?

Dr. TAYLOR. The Office of Farm Management collects no material on that point, and that is not presented here.

Mr. JACOWAY. You can get that, can you not?

Dr. TAYLOR. From the Bureau of Crop Estimates; yes.

Mr. JACOWAY. If I remember correctly, it was about 50,000,000 acres. Does your testimony show how many bales of cotton were raised from 50,000,000 acres?

Dr. TAYLOR. No, sir.

Mr. HARRISON. Information of that sort will come from the Bureau of Crop Estimates.

Mr. CANDLER. This division does not do that kind of work.

Mr. JACOWAY. Where a farmer has four children who help him to raise his cotton, do you take into consideration the labor of the children and the wife in estimating the overhead to produce a pound of cotton?

Dr. TAYLOR. Oh, yes; and we enter it in at what it would have cost to have hired that labor done.

Mr. JACOWAY. Do you put in the living expenses?

Dr. TAYLOR. Whatever this labor would have cost if it had been hired, which would include living expenses.

The CHAIRMAN. Your investigation is carried along on the same lines as it was carried on in Dane County, with, I believe, 60 farmers?

Dr. TAYLOR. Yes.

The CHAIRMAN. Was that work in Wisconsin carried on by you?

Dr. TAYLOR. Yes; that was under my direction.

The CHAIRMAN. It was conducted along the same line?

Dr. TAYLOR. Yes, sir.

The CHAIRMAN. You propose to continue along the same line?

Dr. TAYLOR. Yes, sir.

The CHAIRMAN. How much of this variation of cost is due to poor management and the things that you hope to overcome or advise against?

Dr. TAYLOR. That is a question it is impossible to answer. But when you have in a given community given conditions—that is, the weather conditions are the same and the animal pests and the plant diseases are the same on both farms—and you find a wide difference of cost, I would be disposed to credit most of the difference in cost to the difference in the man, not all due to the management of the particular year but through a series of years. Good farming is

cumulative. A good farmer is ever bringing his farm to a higher standard of culture, so that his crops are ever better and his live stock is ever better, so that he is gradually coming to this higher plane. A man who is on the lower plane can not jump at once to the higher plane, but we can point him the direction to take in order to gradually rise to that higher plane.

The CHAIRMAN. I think it would be of great service to furnish advice as to the methods of farming; but, of course, as to these other matters, as to the elements, that would be impossible.

Dr. TAYLOR. We would not attempt to give advice as to that.

The CHAIRMAN. Do you make a study of the soil?

Dr. TAYLOR. No, sir.

The CHAIRMAN. Would you make suggestions as to how to treat the soil?

Dr. TAYLOR. No, sir; we would leave that to the specialists on the problems of the soil. Our special problem is that of adjusting the farm organization and farm management in such a manner as to reduce costs and increase profits.

The CHAIRMAN. You would suggest the use of fertilizer, would you not?

Dr. TAYLOR. Yes, sir.

The CHAIRMAN. The amount to be used, the heavy spread or the light spread, and what kind to use?

Dr. TAYLOR. In the first instance, I would say that that is a study for the specialist on soils rather than the Office of Farm Management, although where men are using fertilizer in different ways we get at the difference in cost per unit of product resulting from those frequent applications of fertilizer, but any special study as to the relative amount of fertilizer, etc., is primarily a question for the Bureau of Plant Industry and the Bureau of Soils to make.

Mr. CANDLER. The object of your work, as I understand it, is to determine the cost of management on the farm, to find where the difficulty is and where the losses occur and advise the farmer in reference to that, so as to remove as far as possible all the difficulties and get him as near perfection as possible in the management of the farm in order that he may secure the greatest results from the work he does.

Dr. TAYLOR. Exactly. In the first place, what crops to grow and the proportions between the different crops. If, for instance, you have corn, oats, and clover, in order that you may have a continuous demand for labor—

The CHAIRMAN. You can give the results for one year, but next year it may depend upon the elements. Suppose you should find that an oat crop was more profitable than corn this year. you would not advise the farmer to plant oats next year just on the strength of that?

Dr. TAYLOR. Three crops like corn, oats, and clover fit together and require labor at different times of the year. You can start in with seeding oats and put in your oat crop, and then put in your corn crop and cultivate it, harvest your oats, and then comes the corn harvest, so that you have work throughout the year. Even if your oats are not as profitable as your corn, the thing you want to know is whether or not there is anything you can put in the place of oats that will pay better.

In the State of Wisconsin we have the choice between oats, barley, and spring wheat, and we want to know which of those three to grow. What we have found out practically is that one year and another we practically eliminate wheat, but we do not eliminate oats or barley. We put oats on our lighter land and barley on our richer land, because oats go down so badly on the richer land, and in that way the barley pays better on the richer land and oats pays better on the poorer land, so we combine the two and produce about the same acreage of the two as we would of either one if one paid better than the other.

In other words, it is a problem to get those facts which enable us to fit the parts of a farm work together in right balance.

The CHAIRMAN. But the price of barley changes. Barley may be worth \$2 one year and \$1 the next year. I have often sold barley for less than 50 cents.

Dr. TAYLOR. That is entirely true, that in any given year we lay our plans for the year on the basis of what we think will probably be the price.

The CHAIRMAN. But it is based on the yield and does not take into consideration the fluctuation in price?

Dr. TAYLOR. What the probable price will be, and keeping in mind what the probable yield will be as a basis for comparing the relative profit on oats and barley, for instance. On one particular piece of land I have in mind, for instance, I could not hope for more than 25 or 30 bushels of barley to the acre, whereas I might hope for twice the production in bushels of oats. On that particular piece I put in oats with the price in mind that I will probably get. On the other piece of land, if I put it in oats I would expect the oats to go down and not expect it to fill. I would have a great deal of difficulty in harvesting it, and my operating expense would run high, and my yield would be down, whereas with barley, the expense would be down and the yield higher, and at the price barley would probably pay better.

Mr. HUTCHINSON. Do you work with the farm agent? Is that a part of the farm agent's work or activity?

Dr. TAYLOR. The county agent, yes; and also our office man in charge of farm management demonstrators, through whom we keep in touch with the farm management demonstrator, who is in touch with the county agents, which is one of the routes through which we attempt to get the results of this research work out to the farmer.

The CHAIRMAN. I take it they could assist you in research work also, as far as the bookkeeping and some of the other things. Some things could be done by the county agent, could they not?

Dr. TAYLOR. They stimulate the farmers in keeping records, but, of course, they are very busy men. Through that method all farmers are stimulated in keeping records, and this helps the research men to get specific results when they go out for them.

The CHAIRMAN. It is largely a matter of bookkeeping, is it not?

Dr. TAYLOR. Largely a matter of keeping the records of what is done, and what it costs to do it.

The CHAIRMAN. What would you say to the dairyman that would be of value to him?

Dr. TAYLOR. On a dairy farm the farmer is probably producing his feeds largely, is he not, and where detailed records are kept on a

dairy farm, we keep the records of the cost of different kinds of feeds, so he knows whether it pays better to produce his concentrates or buy his concentrates, which is one thing he wants to know.

Another thing is in regard to the method of handling his cows, whether he should handle them in the barn the year around, or run them on pasture a part of the year and in the barn a part of the year. Of course, the amount of labor involved in keeping cattle in the barn the year around and feeding them silage and hay is very much greater than to keep them on the pasture. The yields may be higher, taking the summer through, but his costs are greater. What we want to do is to get at those elements of cost, so he can figure on these two different methods of work and know how much more his profit is going to be if he uses one method or the other, so he can decide what to do.

Accounting is of value as it points toward what to do in the future.

The CHAIRMAN. You speak of labor. You have reference to milking machines in the dairies?

Dr. TAYLOR. I have reference to the human labor, the power required in the fields, the horsepower, etc., and also the question, of course, of the relative cost of getting this work done by power methods and by hand methods, and, of course, the problem of the—

Mr. HUTCHINSON. It is not your intention to keep a man on the place all the time? Your officer is going to depend largely on the farmer?

Dr. TAYLOR. We will depend largely on the farmer. We will have one man who will look after, say, 25 farms, and he will continually visit these farms and help them to keep these records up in detail so that they can be tabulated, and we will get the results from them.

Mr. TINCHER. Would it be practical to get the records from the different county agents?

Dr. TAYLOR. No; because these county agents are so busy doing various other work that they have not the time to do it.

Mr. TINCHER. That is the very point we are getting at. I talked with several county agents while I was away, and they were not overbusy, most of them. A great many of them would be glad to furnish the reports, if you went to them.

Dr. TAYLOR. We can give plenty of work to any of them who are not busy and would be glad to get their cooperation.

May I just give a few words regarding the remainder of my statement on this question of farm financial relations?

The CHAIRMAN. Would you prefer to finish your statement and have questions asked later?

Dr. TAYLOR. If that is satisfactory; it is all the same to me. With regard to farm financial relations, the work that is being done this year relates primarily to insurance, farmers' insurance companies. There is one man and two or three clerks who have been working on that during the year. The supervision of this work was transferred to the office of Farm Management from the Bureau of Markets by the Secretary at the beginning of the fiscal year. In addition to that, the financial problem of farmers, telephone companies and the financial problem of farm credit has come up, and it is desired to give special attention to the question of the forms of farm credit, and especially personal credit.

You will remember when that matter came before the Congressional committee last year, the question was raised as to whether or not this work should be done by the Federal Farm Loan Board instead of the Department of Agriculture, and no appropriations were made for the current year for the study of forms of credit. As a matter of fact, however, the Federal Farm Loan Board does not contemplate investigations in this field, and for that reason we would like to devote some attention to farm credit in our studies during the coming year.

Farm credit is especially closely connected with problems of farm organization on the one hand and the problem of farm tenure on the other.

Anticipating the probable raising of the question of whether or not the Farm Loan Board wished to do work in this field, the Secretary, at my suggestion, addressed a letter to Mr. Norris, and received the following reply:

TREASURY DEPARTMENT,
FEDERAL FARM LOAN BUREAU,
Washington, November 29, 1919.

HON. D. F. HOUSTON,
Secretary of Agriculture.

MY DEAR MR. SECRETARY: I beg to acknowledge the receipt of your letter of the 25th instant in reference to the investigation of the general subject of rural credits. I have discussed the matter with my colleagues, and we are unanimously of the opinion that studies on this subject should be conducted by the Department of Agriculture rather than by this board. We have no appropriation available for the purpose, and if we were to undertake the work it would be necessary for us to build up an organization of experts which would, in a measure, duplicate the work of the Office of Farm Management.

I presume that with this expression of opinion from this board you will include in your estimates for the fiscal year 1921 the provision of funds for the prosecution of the farm finance project and will be in a position to assure a congressional committee that this appropriation will not duplicate any work which is being done or is to be done by this board. If you think it desirable, however, that there should be any further conference between us, I need not assure you that we are at your service at any time. I am,

Very truly, yours,

GEO. W. NORRIS,
Farm Loan Commissioner.

MR. JACOWAY. Have you made any investigation as to whether or not the individual farmer is satisfied with the Farm Loan Board system of getting money from the Federal Government?

DR. TAYLOR. I have not.

MR. JACOWAY. I understand that they are complaining of the red tape they have got to go through with. They state that they have to answer 266 questions, first, last, and all the time, from the time they make application up until they get the money. Have you had any discussion of that with the farmers in your investigations?

DR. TAYLOR. As I say, we have had no funds for investigating the credit question this year, but we wish especially to investigate the farm credit question from the standpoint of getting credit suited to the needs of the farmer.

MR. ANDERSON. What is the character of the work which you do on cooperative insurance?

DR. TAYLOR. In cooperative insurance a study of the different forms of farmers' cooperative insurance companies has been made. Some of the insurance companies represent very small areas; others

represent larger areas, and Mr. Valgren, who is in charge of this work, has through a series of years been making a very careful study of the success of the different types of cooperative insurance companies, and he has also studied their methods of keeping records and the type of organization, so he is in position at the present moment to give valuable advice to the companies.

Mr. McLAUGHLIN of Michigan. Advice to the companies?

Dr. TAYLOR. Yes; the cooperative companies, these farmers' companies. Sometimes they are county organizations, sometimes they are just township organizations, and sometimes two or three townships in a mutual fire insurance company, for instance, and he is able to give them advice that is very helpful in getting them organized on the proper basis. Only a small amount of the fund has been put into that, but the letters we have received from the different parts of the country with regard to the value of the service that has been rendered in connection with improving these cooperative insurance companies are very reassuring.

On the question of farm labor—

Mr. HUTCHISON. Before you leave the banks, I understood you to say you wanted to investigate the matter of loan credits to the farmers?

Dr. TAYLOR. Yes.

Mr. HUTCHISON. Do you think the department here in Washington can tell better than the local bankers or local people around whether a man is entitled to credit or not?

Dr. TAYLOR. No. I wish to state that we believe the local people are the ones who can answer that question, but let us take a specific example. Let us take a little town down in Texas at Red Springs. Each one of the individual farmers around there, as an individual, perhaps was not worthy of credit, and the bankers up at the county seat would have found it entirely too expensive to have looked up each one of those farmers and to have arranged to give him credit, but when the farmers at Red Springs organized into a group in a credit association, with all the resources behind any particular loan they made, all the bank had to do was to look up the credit of this whole group and then loan the money in a large amount at a time to this association, which in turn did the loaning of this money to the individuals. In other words, a local cooperative credit association was what was needed as the go-between between these little individual farmers, some of whom wanted to borrow \$50, let us say, and the bank at the county seat which had the money to lend.

Prior to this time it had been done in this way: The banker had made the loan to the storekeeper who, in turn, had made advances or sold on time to these farmers at prices which corresponded to time prices, of course. Instead of lending him the money under the new organization, the money goes to the association, and the association members are able then to buy for cash and buy to so much better advantage. The bank has the same work in either case, lending the same amount of money, let us say, and the farmers are very much better off as a result of the cooperative credit association.

In North Carolina credit associations of this kind have been developed. There is a great need of improving this aspect of farm credit. It is not a matter of taking business away from the banks.

It is a matter of better organizing the farmers for getting what they need from the banks.

Mr. ANDERSON. What did you have to do, or what did your organization have to do, with the creation of these credit associations?

Dr. TAYLOR. In this particular Red Springs case it happened that I was personally acquainted with the man who was partly on pay of the Department of Agriculture, and partly from the State of Texas, in connection with the extension work. He was the man who helped these people organize and showed them how to do it. Organizations of this kind are not new. They exist in many countries.

Our first work is to study the different ways in which the farmers may organize to get this credit, to see how these different forms are adapted to different regions with different kinds of farming, the amount of credit that is needed in the different districts, and the form of credit needed is very different in the dairy district from that needed in the cotton district, for instance, and we propose to study the needs from the standpoint of better farming, that is what are the needs and just how the farmers can organize to get in touch with the bank and the credit system that exists.

It is not expected that an entirely new credit system for the United States shall be organized to take care of the farmers. It is a question of how the farmers can articulate with the credit system that exists in such a way as to get funds when they need them, in order to increase the effectiveness of agriculture.

Referring again to the brief I have put into your hands I wish to call your attention to the studies in history and geography, the purpose of which is to bring together the evidence from the long time point of view, and from the broader territorial point of view, that gives a better balance to our judgments in regard to the proper types of farming. Here you will find some maps that illustrate what I have in mind. For instance, the shift in the wheat production, and if you will look at the charts you will find where wheat was produced in 1840, and just below you will find where wheat was produced in 1870. You find that by 1870 the wheat production in the Middle West had developed to very considerable proportions. On the other hand, by 1910, the area in Wisconsin, northern Illinois, and Iowa that was important in 1870 had ceased to be a producing area.

In other words, these changes in production are going on. In any one year we do not know about it, but all those who are studying these aspects from the standpoint of the economic changes that bring them to pass, can give very important additional advice that can not be gotten by the cost-study method. We are making the study not only from the standpoint of what is going on now, but what has been going on through a series of years, for instance, what changes have taken place in the State of Wisconsin, which used to be a wheat country. Now it is a dairy country. What are the forces that have brought that about? We contemplate in that particular case a study in detail. There was a special bulletin published in Wisconsin on that particular point.

On the other page of these charts is given the price of wheat through a long series of years, from 1825 up to the present time. Notice the shifting from year to year in the wheat price. Notice the very high price after the Civil War, and then note the gradual

fall in the wheat price during the series of years after the war, until you get to the low level of 1895. Then, in connection with that, note the great expansion in wheat production, and notice that Kansas, Nebraska, and the Dakotas, and all of western Minnesota came in and threw their great quantity of wheat into the market, and how that tended to sag the price.

The point I wish to make is simply that by studies of this kind we can better understand what the trends are, and understanding the trend, we are in a better position to give advice with regard to readjustment in farming to fit new conditions.

In regard to the subject of land economics, that is a question of land tenure.

The CHAIRMAN. In regard to this shifting, that was due last year to the Government advising people in our section, and other sections, to grow wheat, much to our regret. It cost the farmers millions of dollars, and it decreased the food supply, instead of increasing it.

Dr. TAYLOR. You could have produced more of the crops which your experience, through a series of years, had shown you paid best on your farm?

The CHAIRMAN. Yes; we would have produced more oats, barley, and corn, more than enough to make up the supply of wheat; but that has nothing to do with your work.

Dr. TAYLOR. The next subject that we wish to give special attention to is that of land tenure, that is the question of land ownership and tenancy. What is the trend? Are more and more farms going into the hands of tenants? What are the methods that can be used to make it easier for tenants to become owners, and then, to the extent that they do remain tenants, that is for a series of years, at least, while they are getting enough money with which to make the first payment on a farm, how can the relations between the landlord and tenant be adjusted in such a way as to guarantee better farming and fairness between the landlord and tenant? Those are questions that are receiving some attention at the present time.

Then there is also the question of land settlement. In a number of States where new land is being settled there are various methods of settlement, some of which are very much more satisfactory than others, and those are being studied with a view to improving the methods of getting farms. This goes right along with the problem of showing the young man how he can hope through the years to become an independent farmer, owning the farm which he operates, which we believe is very essential if he is to be contented as a farmer.

Mr. ANDERSON. Before you leave this land economics business, I notice in the estimate here that you have five subdivisions, the first of which is land resources. What are you going to do about that?

Dr. TAYLOR. Land resources is the question of studying the resources of the country from the standpoint of economic utilization. All of the land in the United States is not in farms, and it should not all be in farms. Of the land that is not in farms, which should be brought in and which should not is a very important question from the economic point of view.

Mr. ANDERSON. That is going to regulate itself under ordinary economic processes. You can not regulate that by governmental regulation.

Dr. TAYLOR. What we want to do is to study the matter and clarify thought on that subject in such a way that action may be more intelligent.

Mr. ANDERSON. How are you going to get this information in the first instance, beginning at the beginning?

Dr. TAYLOR. Information in regard to land?

Mr. ANDERSON. Yes.

Dr. TAYLOR. A very great deal of information is available at different points in the various services at the present time.

Mr. ANDERSON. There may be a whole lot of it made available after this next census is taken.

Dr. TAYLOR. Yes.

Mr. ANDERSON. Why not postpone this proposition until we get that information?

Dr. TAYLOR. The idea is this: The census does not show much about what is going on on land not in farms. Let us take the example of what has happened on lands that are now in farms and some people believe should not be in farms. Take the so-called wheat lands of eastern Montana. Just a few years ago, as you will remember, the real estate agents made a big move toward selling lands, which were good grazing lands, to people who knew nothing about those lands, as wheat lands. Their method was to advise them they could buy the land and sell it at a higher price, and they unloaded it on a great number of people. As you know, people started out in that country and tried to grow wheat on that land. It was grazing land, but they plowed it up and put it in wheat, and, as you know, for three years the crops have been a failure.

A very great deal of damage has been done to the people of the United States, not only to individuals who went out and lost all they had, but also to the people of the country, from the standpoint of the price of beef, because a large part of the land which would be good grazing land is not producing anything because production was misdirected. The idea is that the different forces in the Government service are gathering various materials which should be correlated and appraised from an economic standpoint in order that this movement toward new land may be more intelligently carried on. That, however, is only one of the aspects of the land economic studies.

Mr. ANDERSON. If you are going to chase up all these land speculators and tell the people that what we are trying to sell them as wheat land is not good land for wheat, you have got a considerable job on your hands.

Dr. TAYLOR. We will perhaps not chase the speculators, but look up the land and publish information and try to get it in the hands of the people who otherwise would be misled by the speculator.

Mr. ANDERSON. Now, tell us what you are going to do about land values. Preliminary to this question I want to say this: A good deal of this work is new. The ultimate cost of this thing is going to depend very largely upon its scope at the beginning. We are up against what I conceive to be a period of economy in Government expenditures, and consequently we must exercise such care as we are able to with a view to see that we do not enter upon activities that are going to cost a great deal of money and which are not going to result in economic advantages corresponding to the cost. Consequently it is very important that the committee should understand

as nearly as possible the scope of these various activities which you are proposing. That is the reason that I am making these inquiries.

Dr. TAYLOR. So far as the land economic studies are concerned, the major attention will be given to the problems of the relations between landlord and tenant, and the problems relating to the acquisition of land on the part of young men who perhaps start in as hired men, and become tenant farmers with the hope of becoming owners. If they can look ahead to being owners, they may be happy to go through these preliminary stages while they are earning money to make a part payment on a farm.

If the outlook is not promising, they will probably look to some other line of activity; so I say that is the thing that is especially important in maintaining upon the land the right class of people.

Turning back to the question of variation in cost, the cost of producing farm products in the future is going to depend more largely upon the quality of the men upon the farms than any other one thing, and I should say that the hope of owning a farm is the thing that is outstanding in connection with the young man who is figuring on remaining on a farm. It is one, at least, of the outstanding things.

With regard to the question of land values, this last summer, when the land boom came on in the heart of Corn Belt, we at once proceeded to gather information in regard to what had actually happened there. That information will be ready for publication in a few weeks now.

If you are interested, the information that we got covering that matter was of two forms. First, we visited a large number of counties and got over 1,000 cases of land transfers, that is each farm is a case, whether transferred once, twice, or eight times, and then we wanted to know how much these farms increased in price between spring and fall, and we found it running up into very large sums, up to \$125 and more an acre, and then we wanted to know who got the money as between the price that these farms there sold for at first, and the price later, and found that about half of it went to outside speculators, men who were stimulating land transfers, and we found that in most cases these transfers were made on a very narrow margin. When a speculator comes in and buys a farm he pays only \$1,000 down, in the first place, and then before March 1 transfers it to another and another, each one taking a margin out of it, and some farmer holds it at the end at a price appreciably above the price of land last spring, and if it is held with the idea of farming and paying interest on the new high valuation, he has a burden much larger than he would have had the year before.

What we tried to do then at the same time was to get the facts. It happened that the Iowa College of Agriculture had surveyed a large number of farms in 1914, so that they knew just what was happening on these farms in 1914. We arranged in cooperation with the college to go back to these same farms and find what had happened in 1918, in comparison with 1914; that is, how much more was the earning power of these farms in 1918, as a basis of increased land values, and the increase will show how much interest these farmers could pay on the new price and still get wages for themselves, and I can assure you in advance that the rate of interest they

can pay upon these high prices of this last summer will be a very low rate.

Mr. ANDERSON. That is all very interesting, but just what are you going to do with it? What economic advantage is coming from the gathering of this information?

Dr. TAYLOR. We expect these facts to be published so that if a land boom starts next spring we will have the facts in regard to the situation that can be put in the hands of the people so that they can act intelligently, and we believe it is very unwise for a young man, who is a tenant, to buy at the very extraordinary high prices which are based on the high price of hogs, and the high price of corn, with the expectation of paying that debt through a long series of years, when the danger is, whether we like it or not, that the price levels will be lowered, and the burden will be more than he can carry, and he will go to the wall, and bring on an agricultural depression.

In other words, it is closely related to the whole problem of land ownership on the part of men who till the soil.

Mr. JACOWAY. I think the statistics to-day show that there are more tenants in the United States than there are farm owners?

Dr. TAYLOR. The statistics for 1910 are the last statistics we have.

Mr. JACOWAY. Do you know anything about it? Is that true?

Dr. TAYLOR. About 37 per cent of the farmers were tenants in 1910, and about 62 per cent of the farmers owned land; about 52 per cent owned all of the land they cultivated, and then there was approximately 10 per cent that owned a part of the land they cultivated and rented some land from a neighbor, and then there was about 1 per cent of managers.

Mr. JACOWAY. The information I got is that there were 51 per cent tenants and 41 per cent land owners. That is erroneous, is it?

Dr. TAYLOR. That may be perfectly correct for some districts or some county or some particular State. In Illinois the percentage of tenancy runs above 50 in certain counties. In certain other regions in the southern part of the United States the percentage of tenancy runs very high. On the other hand, in States like Wisconsin, the percentage of tenancy is only about 14, but that does not mean that is true for the whole State. In the southern part of the State it is 39 or 40 per cent in some counties, and in the northern part of the State, where there is cheap land, little or no tenancy at all.

Mr. JACOWAY. In my judgment that is one of the most lamentable things in this country—the way the tenant class is increasing.

Dr. TAYLOR. That is one of the problems we want to give very special attention to, and our study of land values has a very close relation to the same subject.

Mr. ANDERSON. What is contemplated now under your fifth subdivision—land policies?

Dr. TAYLOR. Under land policies the idea is to furnish such information as will form the basis of better land policies in regard to land settlement, let us say, in regard to the utilization of new land. We want to furnish the basis. We do not want to be advocating or promoting the introduction of new legislation, but you take in the State of Illinois at the present time, the question of land policy is before the legislature, or was before the legislature last winter, and there was a commission appointed for the purpose of getting together

information which will be the basis of intelligent action in that State, where tenancy has come to be such a dominant factor and where everybody believes it is a menace to the agriculture of the State.

Our notion is that we should be able to gather the facts that will form the basis of intelligent action in regard to what to do in order to improve that situation. The State will establish some policy in this regard.

Mr. McLAUGHLIN of Michigan. The more prosperous the section of the country, the more tenants; is not that true?

Dr. TAYLOR. In the sections of high land values there is more tenancy at the present time, as a rule, than on cheap land.

Mr. McLAUGHLIN of Michigan. The farmer who has become very prosperous does not want to continue to follow the plow and do the work, and he does not have to, and he can rent and live in ease and comfort. It is a pretty hard question to handle, it would seem to me.

Mr. TINCER. A lot of the tenants on those farms are sons of the owners.

Dr. TAYLOR. With regard to the farm-life studies, the purpose there is to get at the basic facts which enable us to understand what are the various reasons for farmers leaving the farm, instead of looking upon country life and farming as a satisfactory life throughout their lives. Studies have been made of a careful scientific character on this subject, which tend to show that in the country, as a rule, many of those conveniences and those forms of organized social life do not exist which would, if present, tend to make the farmer look ahead with satisfaction to spending his whole life in the country.

Mr. JACOWAY. Do you not think the building of good roads, a comprehensive marketing system, and cheap money will make farm life attractive? Do you not think that is the solution, in the main, for making farm life attractive?

Dr. TAYLOR. The country-life side of it is a very important side—transportation, etc.; and, in addition to that, it is desirable and necessary that the farmer have his contacts. In country life the individual is isolated and needs to be organized into groups.

Mr. JACOWAY. Good roads will bring that about.

Dr. TAYLOR. They will help. At the present time you will find a group around a certain locality who are especially favored and are getting the advantages of schooling, etc., whereas those outside of certain circles are not getting those advantages. I just happen to have a chart here of Dane County, Wis., which shows that inside of the circles they have railroads and schools, and those out about so far from these centers seem to take advantage of the schools, but outside of those circles they are not getting high-school advantages. In other words, the farther away from these centers of life, the less likely the farmers are to have the contacts that makes the life satisfactory.

The appropriation is asked for carrying on these studies from the standpoint of making the farm life more attractive.

Mr. ANDERSON. Have you got a statement showing how these proposed expenditures are subdivided?

Dr. TAYLOR. Yes.

Mr. ANDERSON. Among these different projects? You stated you would put it in the record.

Dr. TAYLOR. It is already in the record.

The CHAIRMAN. In connection with good roads, I find on page 5 of the report of the committee appointed by the Secretary of Agriculture to consider the subject of farm life this language:

If paved streets are desirable and necessary in the city, roads in the country which can be used both winter and summer for the transportation of farm products and the easy and convenient movement of the people between country and town are equally necessary and should be provided.

Are we to understand that the Government is committing itself to the building of paved roads in the country?

Dr. TAYLOR. That is a question for Congress and the Bureau of Public Roads.

The CHAIRMAN. It is the recommendation of this commission.

Dr. TAYLOR. The idea is this: In Walworth County, Wis., Dr. Galpin made a special study of each farmer to see what his contacts were, etc., and he showed, for instance, that those who lived within these black areas [pointing to a map] had high-school advantages, and those outside of those black areas were not using the high schools. Of course, the question of roads is very important. If you have better roads, you can go farther.

The CHAIRMAN. This statement is very extraordinary—"are equally necessary and should be provided." In the city 100 vehicles pass over a mile of road to every 1 vehicle in the country and 100 people are taxed and contribute to building the road where 1 contributes in the country, hence the cost per individual is 100 times greater. The average length of road, as I understand it, is about 1 mile to the quarter section. The cost of building hard-surface roads is about \$20,000 per mile; to build half of that mile it will cost \$10,000 for every quarter section of the land. The average width of a residential lot is less than 4 rods and of a business lot less than 2 rods. The two combined, less than 6 rods, which makes it only one twenty-seventh of the length of road along the quarter section.

Is it practical for the Federal Government to commit itself to these hard surface roads? Is it not safe to leave it to the State legislatures and the people in the respective communities to determine what roads they will build? Why not leave it to the good judgment of the people?

Mr. HARRISON. I do not recall the exact wording of the statement, but it does not mean that there ought to be concrete roads all over the country.

The CHAIRMAN. I take it to mean exactly what is stated in the report. It was made clear before this committee that the Department of Agriculture would not commit itself to paved roads or any other hard roads.

Mr. HARRISON. The department has not committed itself to any particular type of road. This is clearly indicated by the action that has been taken under the terms of the Federal aid road act. Many sand-clay and gravel projects, as well as hard-surface roads, have been approved by the department under its provisions.

The CHAIRMAN. You may put whatever construction on the words that you please; the word "paved" is used; yet this committee never

was committed to it; the Secretary promised the committee that he never would commit the department to hard-surface roads.

Mr. HARRISON. No reference is made in the Federal aid road act to any particular type of road. It requires, however, that all roads constructed under its provisions shall be "substantial in character" which means, according to the Secretary's report for 1919—

that the road must be so constructed that it will carry the prospective traffic with such maintenance expenses that the total annual charges will represent a reasonable expenditure for the public service rendered by the highway. It is to the interest of the States that the roads on which Federal funds are used be substantially constructed, because the law requires them, or their civil subdivisions, as a prerequisite to receiving further funds, to maintain properly all roads built with Federal aid. There is nothing in the law which restricts types of construction between narrower limits than those established by sound finance and good engineering practice.

The CHAIRMAN. I am referring to the statement made to this committee before that bill was passed. It was stated positively that that department would never commit itself to hard-surfaced roads, and here we find a recommendation—

Mr. HARRISON. As I have said, the department has not committed itself to any particular type of road.

The CHAIRMAN. The word "paved" is used.

Mr. HARRISON. I want to say again that the statement to which Mr. Haugen refers was not intended to commit the department in any way—

Mr. JACOWAY. What does it mean, Mr. Harrison?

Mr. HARRISON. It refers to good roads, roads which are "substantial in character," and this phrase must be interpreted in the light of present and probable traffic and other conditions prevailing in the particular sections where the roads are constructed. I have already given a concise definition of the term.

Mr. McLAUGHLIN of Michigan. I think Mr. Harrison is right about that.

Mr. HARRISON. There is no doubt about it.

The CHAIRMAN. There is a definite statement there. "Paved" is used. Everybody knows what a paved road is.

Mr. HARRISON. Mr. Chairman, several constructions can be given to many words, and I am stating to you now the construction placed by the department on the statement you have quoted. As a matter of fact, the statement says nothing about "paved" roads in the country. If you will examine it closely you will note that it reads this way: "If paved streets are desirable and necessary in the city, roads in the country which can be used both winter and summer for the transportation of farm products," etc., "are equally necessary and should be provided." This statement, so far as it relates to the country, says merely that roads which can be used both winter and summer—in other words, roads which are "substantial in character" within the meaning of the definition I have given here—are necessary and should be provided.

The CHAIRMAN. Is there anything else, Dr. Taylor?

Dr. TAYLOR. I think that is all.

The CHAIRMAN. Thank you, Dr. Taylor.

(Thereupon, at 12.40 o'clock p. m., a recess was taken until 2 o'clock p. m.)

*Allotment of funds, by projects, for fiscal year 1920 and estimated for 1921,
Bureau of Farm Management and Farm Economics.*

Projects.	Allotments, 1920.			Estimates, 1921.			Increase.	De-crease.
	Lump.	Statu-tory.	Total.	Lump.	Statu-tory.	Total.		
1. Administration.....	\$25,565	\$36,830	\$72,395	.....	\$46,660	\$46,660	.....	\$25,735
2. Cost of production.....	20,070	3,680	23,750	\$243,090	19,320	262,410	\$238,660	.....
3. Farm organization.....	84,795	18,740	103,535	52,000	9,440	61,440	.....	42,095
4. Farm finance and farm rela-tions ¹.....	.....	.....	.....	20,360	3,800	24,160	24,160	.....
5. Agricultural history and geography.....	22,480	9,700	32,180	28,100	9,900	38,000	5,820	.....
6. Land economics.....	31,770	3,780	35,550	110,520	14,220	124,740	89,190	.....
7. Rural life studies ¹	8,760	1,200	9,960	19,360	2,400	21,760	11,800	.....
8. Demonstration activities (extension work).....	14,720	.....	14,720	32,820	.....	32,820	18,100	.....
Statutory vacancies.....	.....	10,500	10,500	.....	.....	.....	.....	10,500
Total.....	218,160	84,430	302,590	506,250	106,740	611,990	387,730	78,330

¹ A large part of the work of the project on rural organization of the Bureau of Markets was transferred to the Office of Farm Management, together with its lump-fund appropriation of \$15,780 and a statutory appropriation of \$3,800. These funds were allotted as follows: Farm financial relations (lump, \$4,150; statutory, \$2,600; total, \$6,750); rural life studies (lump, \$11,630; statutory, \$1,200; total, \$12,830).

Net increase—\$309,400.



COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Tuesday, December 9, 1919.

The CHAIRMAN. We will be pleased to hear Mr. Marvin next.

WEATHER BUREAU.

STATEMENT OF MR. CHARLES F. MARVIN, CHIEF OF THE
WEATHER BUREAU, DEPARTMENT OF AGRICULTURE.

MR. MARVIN. Mr. Chairman, in accordance with the program which Mr. Harrison has just outlined, I have prepared a statement here on the estimates for the Weather Bureau. With your permission I should like to read this, and I think the hearing may go along more rapidly that way.

The CHAIRMAN. Is it brief and to the point?

MR. MARVIN. I think so; yes, sir; probably more so than I could state it myself. In view of the fact there are a number of new members on the committee, I have taken a little time to briefly outline the work and functions of the Weather Bureau. No more concise statement of these can be given than that found in the organic act of the bureau, which in part reads as follows:

SEC. 3. That the Chief of the Weather Bureau, under the direction of the Secretary of Agriculture on and after July first, eighteen hundred and ninety-one, shall have charge of the forecasting of weather, the issue of storm warnings, the display of weather and flood signals, for the benefit of agriculture, commerce, and navigation, the gaging and reporting of rivers, the maintenance and operation of seacoast telegraph lines, and the collection and transmission of marine intelligence for the benefit of commerce and navigation, the reporting of temperature and rainfall conditions for the cotton interests, the display of frost and cold-wave signals, the distribution of meteorological information in the interests of agriculture and commerce, and the taking of such meteorological observations as may be necessary to establish and record the climatic conditions of the United States, or as are essential for the proper execution of the foregoing duties. (Act Oct. 1, 1890, c. 1266, s. 3, 26 Stat., 653.)

I quote this language to show that agriculture is only one primary interest which the Weather Bureau is required to serve.

Congress has placed the Weather Bureau in the Department of Agriculture, and the law says the Weather Bureau must serve commerce and navigation as well as agriculture. This point is emphasized in order that this committee, whose primary interests are of necessity chiefly in behalf of agriculture, may nevertheless clearly recognize how comprehensive and far-reaching is the great public service which the Weather Bureau is required to render. Without

exaggeration I can confidently say that there is scarcely any important industry or activity of the Nation which is not to a greater or less extent influenced by weather conditions, and therefore needs the advices, information, and economic benefits which flow from the full and efficient administration of all the duties of the Weather Bureau.

If you go back, gentlemen, to the joint resolution of Congress which created the Weather Service in 1870, you will see that the primary object was to benefit navigation—marine navigation—to save life and property on the Great Lakes and the Atlantic coast. Nearly 50 years of splendid service to the Nation now stands to the credit of the Weather Bureau, and to-day navigation of the air for both civil and military purposes is a complete realization. More than ever before the science of meteorology is now called upon in aid of aerial navigation. Lives and property engaged in aeronautics must now be spared and conserved, and the estimates of the Weather Bureau make provision for much-needed extensions in this direction. This service by the Weather Bureau in aid of aviation is of great importance to the Army, the Navy, the Post Office, the Air Service, and all interested in the development of civil aeronautics. It is important to recognize that the outcome of the war has brought us face to face with an entirely new set of working conditions, and these impose upon the Weather Bureau large extensions of its work if it is to continue to fully serve the public, the industries, commerce, and navigation, especially the present-day navigation of the air and of the oceans.

Meteorology applied to military operations accomplished many wonderful results during the war, and even in peace time its advices and information are indispensable to many branches of the military, such as the Air Service, the Coast and Field Artillery, the gas-warfare section, and to the Navy in its operations of heavy gunfire, navigation of the air and the oceans; and like activities.

During the war a proclamation of the President charged the Chief Signal Officer with the duty of organizing and directing the meteorological work of the Army. In a public address on aeronautics in the United States, Gen. George O. Squier makes the following statement with reference to the meteorological work of the Army developed during the war:

The success which the meteorological service has attained would have been wholly impossible had it not been for the intimate and effective cooperation which has been extended to it in all of its projects by Director C. F. Marvin and the entire staff of the United States Weather Bureau.

That effective cooperation is still in full force, as far as available funds permit, but the hand of the Weather Bureau must now be strengthened so that it can properly meet all the obligations imposed by post-war conditions and devolving upon it by force of the provisions of its organic act. No other agency of the Government now has like authority of law to engage in or perform meteorological work, and if the Weather Bureau fails to meet requirements it will certainly become necessary for other Federal agencies to undertake the work. Obviously this would involve much wasteful duplication and call for far larger ultimate expenditures.

There should be one and only one strong Government agency engaged in conducting all lines of work in meteorology. Its service

of advices, information, warnings, and observations must at all times be made available to every interest needing them or benefited thereby. Failure to meet any of these obligations opens the way to segregation of functions, duplication, and waste.

During the war the expenditures, personnel, and activities of the bureau were held to the absolute minimum. Important lines of work were curtailed, and urgently needed extensions were restricted or deferred. The funds, formerly sufficient, are now inadequate to conduct the same activities. The time has come when the appropriations of the Weather Bureau must be adjusted to its new responsibilities.

These estimates are not intended to provide for anything but urgent necessities. I wish to emphasize that our program is a great actual service to the whole public based upon a long experience of the bureau in doing like work. No large expenditures upon questionable schemes of investigation or developments with doubtful outcome are contemplated. It is altogether a question of normal legitimate growth. We can not stop the Nation from growing, and the Weather Bureau must grow with the Nation. I appeal to you, gentlemen, simply for funds to rehabilitate the bureau from the consequences of the war and to enable it to meet the new demands it now faces.

It is impossible to close this general statement without a brief discussion of salary increases, notwithstanding that all provisions for increases are excluded from these estimates because of the plans for the reclassification of Federal employees. The salary situation, however, is distressing, and I mention this unpleasant subject here only because it is so vital and because the salaries of employees of the Weather Bureau were fixed many years ago, and have remained nearly stationary ever since. As a class these men were decidedly underpaid before the war as compared with many employees in newer branches of the Department and Government.

The bonuses, etc., afford no adequate remedy for this situation, because insufficient, and they do not and can not extend even-handed justice. Loyal, faithful, and efficient employees of our bureau patriotically held their posts under distressing conditions during the war. Great unrest and discontent are now growing among these faithful public servants, as they feel more keenly the pinch of the high cost of living and see the wages of the plumber, the carpenter, the mason, the printer, in fact, of the mechanic in every grade, as also the pay of miners, railroad men, and ordinary uneducated laborers, including the salaries of professional and technical men in the industries, going higher and higher. The average daily wage of 26 building trades in New York City, as issued November 8, is \$6.87. The average daily wage of the helpers in these same trades is \$4.75. The average daily basic pay of the 500 technical field employees of the Weather Bureau, calculated on a basis of six days to the week and 50 weeks to the year, and with an average length of service of 15 years, is \$4.38. That is to say, the technical and scientific men of the Weather Bureau now receive less pay than the wage of mechanics' helpers, based upon service six days a week. As a matter of fact, the average daily pay of Weather Bureau field employees is considerably less than \$4.38, because they are required to be on duty every day in the year, Sundays and holidays included. More

than that, a large part of them perform work that carries them well into the hours of the night. Mechanics would receive time and a half or double time for similar hours, which is not available to our Government men, and which, if added to the average of \$6.87 per day shown for mechanics, makes the comparison all the more significant.

The service performed by our meteorologists is unsurpassed in its scientific technology and importance to the Nation. In the nearly 50 years of the existence of the bureau, its experts have brought the service of meteorology applied to the welfare of the Nation to a highly advanced stage of perfection. Great atmospheric disturbances visit with relative frequency one section of the country or another. Violent storms, cold waves, frosts, freezes, hurricanes, floods, heavy snows, and the like, repeatedly cause destruction of property, such as shipping on the Great Lakes and coastal waters of the Nation and in recent times the lives and property engaged in aerial navigation. Crops and farms in flooded districts are laid waste. Lambs, live stock, and meat animals in the stock ranges of the West are killed by blizzards and cold waves. Orchard crops, truck gardens, and vineyards everywhere are damaged by frosts and freezes. The men of the Weather Bureau are the sentinels ever on guard against these injurious natural forces. By forecasts and warnings, issued and disseminated well in advance, great economic benefits and saving accrue to the Nation through the precautionary measures which can be taken on timely advices to minimize or ward off injuries which otherwise inevitably attend the great atmospheric phenomena mentioned. Efficiency in the execution of this work requires military promptness and fidelity in the execution of orders and frequently entails continuous duty, day and night, whenever exigencies arise, and regardless of the conventional hours of work, and on Sundays and holidays alike.

The educational qualifications, devotion to the science, and the intellectual attainments of the men competent to perform these important functions and conduct the researches and investigations essential to progress and the development of science are of the highest order. These men now appeal for recognition—plead for simple justice in the form of adequate compensation under existing conditions.

The present plans for the reclassification of salaries of Government employees applies only to employees in Washington. Nearly 70 per cent of the Weather Bureau men are in the field, and I must urge with all the sincerity within my power that this Congress extend quickly to these men in the field the relief so long delayed, so justly deserved, and so urgently needed.

Passing from these generalizations to the more detailed features of my estimates, I must emphasize again that every increase requested is now deemed urgently necessary to enable the Weather Bureau to meet the new conditions which it now faces.

Our appropriations have remained nearly stationary during the period of the war and it is necessary that they now be brought up to working conditions at the present time.

At this point, Mr. Chairman, I should like to proceed to the detailed estimates, which begin with the statutory roll, page 25.

The CHAIRMAN. Will you take them up item by item?

Mr. MARVIN. Mr. Chairman, I should like to read a brief statement in regard to that roll, covering the few minor changes, and then we can go to a discussion of the items.

The CHAIRMAN. Kindly refer to the page of the estimates, the number of the item, and read the first line of each item in the record.

Mr. MARVIN. Page 25. This is what is called the statutory roll of the Weather Bureau.

Mr. HUTCHINSON. Before you start, may I ask you a question: Which item here is it that comprises these field operators, the ones who work outside?

Mr. MARVIN. Those will come in item 55—it is further along in the estimates; the field men are item 55, on page 29. I would like to take that up in detail later.

The statutory roll calls for no explanation, because, under the Departmental instructions, no material change was permitted except to make a few necessary transfers from the miscellaneous rolls which have been reduced accordingly.

The CHAIRMAN. Will you point out the increases?

Mr. ANDERSON. After making these transfers to the statutory roll, will you still be carrying any clerks on your lump fund appropriation?

Mr. MARVIN. No, sir.

The CHAIRMAN. Will not the lump sum appropriations carry salaries?

Mr. MARVIN. Oh, yes. Mr. Anderson spoke about clerks.

The CHAIRMAN. Future appointments made under the lump sum appropriations will not be carried on the statutory roll. So you may have a number outside of those appearing on the statutory roll.

Mr. MARVIN. Yes, sir; scientific and technical men, but not clerks. There will be a number of employees on the lump-sum appropriations; none, however, of the character that go on the statutory roll according to the plan by which the statutory rolls and the miscellaneous rolls are differentiated at the present time. These transfers, Mr. Chairman, to which I referred are the transfers which are made in accordance with the plans under which we have been working for several years. The scientific and technical men are carried on the miscellaneous rolls. The clerical force, laborers, and men of that character, are carried on the statutory roll. These transfers, for example, of two clerks at \$1,200 each.

Mr. JONES. That is subdivision 10, is it not?

Mr. MARVIN. On page 27, near the top.

The CHAIRMAN. It would be well to take them up from the beginning, starting on page 25, item 10 (32 clerks, class 1), there is an increase of two by transfer from lump fund.

Mr. MARVIN. Those are the two I am speaking of.

Mr. JONES. You reduce the clerk hire there, too, don't you?

Mr. MARVIN. Yes, sir.

Mr. JONES. It makes the difference between last year's request of \$37,200 and this year's estimate of \$37,600?

Mr. MARVIN. Yes, sir.

Mr. JONES. Your next change is down in item 24?

Mr. MARVIN. (Item 24, one supervising instrument maker.) Yes, sir.

Mr. JONES. That is true. Those are all the changes there are on that page.

Mr. MARVIN. Yes, sir.

Mr. JONES. Then on page 26, in article, 31, you have a change?

Mr. MARVIN. Item 34. (One assistant engineer, \$1,200.)

Mr. JONES. No; item 31. It is \$840 in here, and it was \$720 in the other.

Mr. MARVIN. One skilled mechanic, \$840, according to my copy, item 31.

Mr. JONES. Yes; a difference in last year's appropriation; 34 is added, is it not?

Mr. MARVIN. Thirty-four (one assistant engineer, \$1,200)—that is a new place.

Mr. JONES. The next one is 39 (one repairman, \$1,200).

Mr. MARVIN. The changes in the statutory roll are summarized on the top of page 27: New place, one assistant engineer. Transfers: Two clerks, one supervising instrument maker and one repairman. Those are the only changes in the statutory roll.

Mr. McLAUGHLIN of Michigan. And those men were formerly carried on the lump sum?

Mr. MARVIN. Yes, sir; new men taken on during the year.

The CHAIRMAN. And a new place submitted?

Mr. MARVIN. Yes, sir; a new place submitted, for an assistant engineer.

Mr. McLAUGHLIN of Michigan. Those men transferred were carried on the lump sum at the same salaries?

Mr. MARVIN. The same salaries, yes, sir. Those were new places which were required and for which there were no places on the statutory roll. Under the law, we can appoint those men on the miscellaneous roll and in the next estimates, transfer them to the statutory roll. That is the plan followed at the present time.

Mr. ANDERSON. I notice all through these estimates that apparently under your lump-sum appropriations you do not estimate for any clerks.

Mr. MARVIN. No, sir.

Mr. ANDERSON. But somehow or other during the year a lot of clerks get on that roll and then the next year they appear as transferred from the lump-fund roll to the statutory roll.

Mr. MARVIN. Mr. Anderson, in that case, in the present Weather Bureau case, you will notice, three of those places are on the aerological roll. That is a new line of work that Congress gave us money for the development of a year or two ago. We could not foresee at the time the estimates were made, just exactly the number of clerks we would need. The law gives us the authority to employ clerks under those exigencies in the development and expansion of new work. We are authorized by law to employ those clerks on the miscellaneous roll and to pay them from the miscellaneous fund until the positions are made statutory.

Mr. ANDERSON. Those are temporary clerks; not permanent?

Mr. MARVIN. They are permanent, not temporary. We transfer them in the next estimates to the statutory roll and reduce the miscellaneous fund accordingly.

Now, Mr. Chairman, if I may proceed here with my statement, I would like to call attention to a situation that is not set out in

these estimates at all as I think you should to be acquainted with the conditions under which we are struggling.

The CHAIRMAN. Before you leave this item, explain the new place item 34 (one assistant engineer, \$1,200). Let us dispose of item by item, and clear it up as we go along.

Mr. MARVIN. This new place is for an assistant engineer. The Weather Bureau has its own property at Twenty-fourth and M Streets, in this city. We have buildings and grounds and operate our own light and power plant. Men are on duty there from 6 and 7 o'clock in the morning until 10 and 11 o'clock at night. The forecast work requires work at nighttime, and our power-plant employees must be on duty there all this time and keep the plant in operation. We have one engineer now and we are asking for an assistant engineer. The plant is in charge of a fireman when the engineer is off duty. He can not be on duty all the time. It is unsafe and unsatisfactory to leave that expensive plant in charge of the fireman. We want an assistant engineer there at \$1,200 to take charge when the engineer is not on duty.

The CHAIRMAN. You say from 6 in the morning until 11 at night?

Mr. MARVIN. Mr. Calvert, at what time do they start up in the morning?

STATEMENT OF MR. E. B. CALVERT, CHIEF CLERK OF THE WEATHER BUREAU, DEPARTMENT OF AGRICULTURE.

Mr. CALVERT. The engines are started at 7 o'clock in the morning; observations begin at 7.30.

The CHAIRMAN. How much of a force have you there beyond the seven hours?

Mr. CALVERT. The map force consists, all told, of about 15 men, including the telegraph operators. These men are engaged on the scientific features of the work.

The CHAIRMAN. The whole building has to be heated from 7 o'clock in the morning to 11 o'clock at night?

Mr. CALVERT. Yes, sir.

The CHAIRMAN. With one engineer?

Mr. CALVERT. Yes, sir.

The CHAIRMAN. How many firemen?

Mr. CALVERT. May I make this statement? Up to a few months ago we had a fireman and steamfitter at \$840, who had been with us a great many years and who was competent to take care of that plant. He resigned and is receiving now, as I understand, \$7 a day in the navy yard.

The CHAIRMAN. How many firemen have you?

Mr. CALVERT. We have five, including the fireman and steamfitter.

The CHAIRMAN. How big a plant is it?

Mr. CALVERT. We have two large boilers. The horsepower developed, I can not say off-hand. The two boilers heat a group of buildings; that is, one big main building and annexes which are entirely separated from the main building. In addition they furnish the power for all of the printing presses and machine shops.

Mr. McLAUGHLIN of Michigan. These five men are not on duty all at the same time?

Mr. CALVERT. Oh, no; we have two firemen on duty from 7 o'clock in the morning until 11 o'clock at night, and one fireman after 11 o'clock.

Mr. McLAUGHLIN of Michigan. None of them work more than eight hours?

Mr. CALVERT. They work a full eight hours; we have an eight-hour shift for the power-plant employees.

The CHAIRMAN. Do they work Sundays and holidays?

Mr. CALVERT. Sundays and holidays included.

Mr. HUTCHINSON. You said you had two boilers?

Mr. CALVERT. Two boilers.

Mr. HUTCHINSON. What is the power they generate?

Mr. MARVIN. Rated at 100 horsepower each.

The CHAIRMAN. Can you give an estimate of how much coal they consume?

Mr. CALVERT. We consume a ton and a half to two tons of coal a day.

Mr. HUTCHINSON. It takes four men to fire a ton and a half to two tons of coal a day?

Mr. CALVERT. We only have two employees on at a time.

Mr. HUTCHINSON. But you have four or five firemen?

Mr. CALVERT. They work in 8-hour shifts, 24 hours a day, and there are not more than two firemen on at any one time.

Mr. HUTCHINSON. Don't you suppose it would be cheaper if you would fire them and get two good men in their places, and that you would get better results?

Mr. CALVERT. I doubt very much whether we could get men who would work 12 hours on a stretch.

Mr. HUTCHINSON. You can not get good men on the salaries you are paying?

Mr. CALVERT. That is true.

The CHAIRMAN. How much coal did you say is consumed in 24 hours?

Mr. CALVERT. About a ton and a half a day. I have not the exact figures.

The CHAIRMAN. And it takes five men to shovel a ton and a half of coal a day?

Mr. CALVERT. There are only two men on duty at one time in the plant.

The CHAIRMAN. But in all there are five men?

Mr. CALVERT. In all there are five men.

The CHAIRMAN. On the three shifts?

Mr. CALVERT. On the three shifts.

Mr. JONES. Why five; why not six? How do you manage your third shift?

Mr. CALVERT. Simply because after work is closed down at 11 o'clock at night, it only takes one man to keep the fires going. They are banked or semibanked.

Mr. HUTCHINSON. He is a watchman, then, after that?

Mr. CALVERT. You may call him a watchman, but he has to keep the fires going from 11 o'clock at night until 7 o'clock in the morning.

Mr. LESHIER. Would not those fires keep going without him?

Mr. CALVERT. I believe it would be unsafe to leave the plant alone.

**STATEMENT OF MR. CHARLES F. MARVIN, CHIEF OF THE
WEATHER BUREAU—Continued.**

Mr. LESHAR. If that is all the coal those men shovel, they are not overworked. Do you know what a fireman usually shovels?

Mr. MARVIN. I do not, but we must have a man there whether he is busy shoveling coal or not.

Mr. TINCHER. Supposing the manufacturing interests and business interests, outside interests, were to work on that basis, how would they operate? If they had to have four firemen on in order to handle a ton and a half of coal a day, how much would get done in this country if individuals managed their business in any such manner as that?

Mr. MARVIN. That depends on what kind of a plant they operate, of course.

Mr. TINCHER. It does not make any difference what kind of a plant they operate. If you have two boilers, furnishing 100 horsepower, and keep two firemen on hand to keep those boilers running—two firemen on duty on one shift to keep those two boilers running—any business man would say there ought to be a reform in the business, I would think. Are the boilers so separated that one man can not put coal into both of them?

Mr. CALVERT. The boilers are closely related.

Mr. HUTCHINSON. Do these firemen do any other work but fire this ton and a half of coal?

Mr. MARVIN. I think not; the firemen do only the firemen's work.

Mr. HUTCHINSON. All they do is to handle this ton and a half of coal a day, these five men; is that all?

Mr. CALVERT. That is all they do, and take care of the general plant. We assign them to no other labor.

Mr. HUTCHINSON. What other work does a fireman do except put in the coal?

Mr. MARVIN. Of course, he has to keep the engine room clean and to take the ashes out and see to the hauling of them away, and see that a man calls for the ashes, and all that.

Mr. TINCHER. But a man calls for the ashes?

Mr. MARVIN. He has to place them where he can get them. We have a little hoist in the basement room that takes the ashes out.

Mr. HUTCHINSON. That is about two or three wheel-barrows full?

Mr. MARVIN. They are put onto the hoist in cans, or in receptacles of that character—fireproof receptacles. The question here is, whether it is proper administration that this heating and power plant, two generators, and all that machinery which is kept in operation up to 11 o'clock at night, should be left in charge of a man who is not an engineer, especially the kind of fireman you can employ for \$840; or whether we should have a responsible assistant engineer at higher pay to do that work.

The CHAIRMAN. Have you made investigations as to the number employed at other plants outside of your department, and how many should be required to run a plant of this sort?

Mr. MARVIN. I have not made any comparison of that sort. We have submitted this because we believe it to be a reasonable provision, and we think it is not an unfair comparison with other branches of the Government where they are operating under similar conditions.

This plant is by itself and, as I have explained, we have a printing plant and machine shop, and the power is used for running the presses and machinery. The engines are in operation all during the day, from 7 o'clock in the morning on holidays and Sundays. We have the night forecasting, which is rarely completed before 11 o'clock. Then there is the heating of the buildings in cold weather. It is a pretty long stretch on duty, and it is simply impossible for one engineer to do that.

Mr. JONES. I concede probably you are justified in asking for an assistant engineer. One engineer can not stay on duty in a plant and watch the machinery, the engines and dyamos, for 24 hours if they are continuously in operation. But is it your opinion that two firemen should be engaged at the same time, just to fire two boilers closely related and that do not consume any more than a ton and a half of coal a day?

Mr. MARVIN. I think this condition of the four firemen at \$720 has been in operation for some time, and we have felt it necessary to have that number.

Mr. JONES. Necessary, why? To run the boilers, or for some other reason?

Mr. MARVIN. No, sir; those men are engaged not only on firing work, but must look after the engines and dynamos, which require frequent attention.

Mr. JONES. Then is it your opinion it takes two firemen to fire two boilers that are closely related and burn only a ton and a half of coal a day?

Mr. MARVIN. My experience is it is necessary to have two men on duty at one time.

Mr. HUTCHINSON. Suppose a manufacturer were to run his business that way. How long do you think he would run it?

Mr. MARVIN. I am sorry to say I am not a manufacturer.

Mr. TINCHER. That is, in all six men producing a hundred horsepower in 24 hours—five firemen and one engineer. Now, it takes 100 horsepower to run many private institutions in the country, and if any one used six men in producing 100 horsepower he ought to buy new equipment if he has such equipment as that. What kind of engines are they?

Mr. MARVIN. These are internal-combustion boilers.

Mr. TINCHER. The rest of it is electrical machinery?

Mr. MARVIN. The rest of it is electrical machinery—two generators and two engines.

Mr. TINCHER. Of course, a private institution, in private business, would use three men to perform in 24 hours, one man for each 8 hours. That is what you would have to do if you were running a private business; but here you have six and are asking for seven.

The CHAIRMAN. The number seems large. In my country one engineer would shovel a ton and a half of coal and run the engine besides, without the firemen. That matter should be looked into, Doctor.

Mr. MARVIN. I would be very glad to consider a reallotment of that force if it is possible to work it out. I would like, Mr. Chairman, with your permission, to give this matter further consideration and submit a statement to you in regard to it.

Mr. TINCHER. Where is this plant?

Mr. MARVIN. At Twenty-fourth and M Streets.

Mr. JONES. What coal do they burn; soft coal?

Mr. MARVIN. Soft coal at the present time. We formerly burned hard coal.

The CHAIRMAN. You have Item No. 35 (one fireman and steam fitter, \$840). What does he do?

Mr. MARVIN. That is an additional fireman to the four that are in the previous item, and his duties, in addition to fireman, are to look after the maintenance of the steam-heating and plumbing work of the bureau. He is called a fireman and steam fitter, simply because he has this additional qualification. Very little of his time should be devoted to the power plant, but it is necessary under present conditions.

The CHAIRMAN. That is outside of the engine room?

Mr. MARVIN. His duties carry him outside of the engine room; wherever the heating equipment or plumbing of the building requires alteration or attention or maintenance.

The CHAIRMAN. You have Item 39 (one repair man by transfer from lump fund for station salaries, \$1,200). What are his duties?

Mr. MARVIN. That is the case of an employee in the field. This is a line repair man, what is called a repair man of the telegraph line. We have a telegraph line down the Atlantic coast from Cape Henry to Cape Hatteras.

The CHAIRMAN. It is outside of Washington?

Mr. MARVIN. Yes, sir.

The CHAIRMAN. He is outside of Washington?

Mr. MARVIN. He is outside of Washington.

Mr. TINCHER. What is Item 37 (one captain of the watch); is that in this main building?

Mr. MARVIN. Yes, sir; it is on this property.

Mr. TINCHER. He is a different man from these others?

Mr. MARVIN. Yes, sir.

Mr. TINCHER. Then Item 38 (one electrician)—he is in the same building?

Mr. MARVIN. That is the Weather Bureau property. The Weather Bureau property consists of a central building with a wing or extension running around the grounds.

Mr. TINCHER. This electrician has to do with the machinery that is operated by this 100-horsepower boiler?

Mr. MARVIN. Yes, sir. We have also the lighting, the heating, and the power of our building operated from this power plant; the electrician looks after all wiring, installations, etc., as well as the large number of batteries used in the operation of automatically recording instruments, signals, etc.

Mr. TINCHER. That is all the power he has any jurisdiction over, the electricity that is furnished by this 100-horsepower plant?

Mr. MARVIN. Yes, sir.

Mr. TINCHER. And the captain of the watch, does he look after the same building?

Mr. MARVIN. He is in charge of the watch force and the laborers of the bureau required in and around the grounds and the messengers who carry the maps, forecasts, and so forth, into the city routes, and the general supervision of the laboring force.

Mr. JONES. Item 39 (one repair man), that is a man out in the field? That is right?

Mr. MARVIN. Yes, sir.

Mr. JONES. What is Item 40 (one repair man, \$960)?

Mr. MARVIN. That is another repair man.

Mr. JONES. Out in the field?

Mr. MARVIN. He is in the field; yes, sir.

Mr. JONES. How about Item 42 (four repair men, at \$840 each)?

Mr. MARVIN. They are repair men who are in the field.

Mr. JONES. And Item 43 (six repair men, at \$720 each)?

Mr. MARVIN. Yes, sir.

Mr. JONES. Item 44 (four watchmen, at \$720 each), where are they stationed?

Mr. MARVIN. They are in Washington.

Mr. JONES. For how many buildings?

Mr. MARVIN. We have one main building and one auxiliary building that extends around two angles of the square.

The CHAIRMAN. It is all in one block, is it not?

Mr. MARVIN. It is all in one block; yes, sir.

Mr. JONES. Why four watchmen for them?

Mr. MARVIN. It is required; we could not properly guard the buildings with less.

Mr. HUTCHINSON. Why could we not consolidate these four watchmen with the four firemen and give them more money and get better service?

Mr. MARVIN. I do not think so.

Mr. HUTCHINSON. Why could you not get a man for \$720—

Mr. MARVIN. If I may ask Mr. Calvert—he has more knowledge of the watch force and the firemen's work—and if he can make a statement it may help to provide an explanation here as to the number of watchmen required.

The CHAIRMAN. What is the total cost of operating this heating plant?

Mr. CALVERT. I have not the figures, Mr. Chairman; but we can very easily secure them for you. We have a very competent engineer, who is intrusted with the details of the operation of the plant.

The CHAIRMAN. We would like to have an approximate amount, if you can give it.

Mr. CALVERT. That is, you wish the coal and material—

The CHAIRMAN. To heat and light the buildings.

Mr. CALVERT. I would not venture an opinion, Mr. Chairman, because it would be a guess.

The CHAIRMAN. How would it compare with the general charge the city makes for light?

Mr. CALVERT. That has been investigated a number of times, and it was found more advantageous to continue our present arrangement.

The CHAIRMAN. Would not the cost be considerably less?

Mr. CALVERT. When you figure the new equipment required in changing over from direct current to alternating current equipment, it is very much more economical under the present arrangement.

Mr. TINCER. You mean, the cost of current in Washington is such that you could operate a 100-horsepower plant with this kind of expensive plant cheaper than you can buy the current?

Mr. CALVERT. A few years ago the matter was investigated, for the purpose of changing from our own power to city power. I was not among the men who investigated the matter, but the report showed it to be more economical to retain the present plant.

Mr. TINCHER. Do you know what the power price is for current?

Mr. CALVERT. For an individual, I think it is 10 cents.

Mr. TINCHER. Oh, no; for power?

Mr. CALVERT. For power; I do not know exactly; probably 3, 4, or 5 cents, depending on consumption.

Mr. ANDERSON. How long ago was this investigation made?

Mr. CALVERT. About five years ago.

Mr. ANDERSON. Your plant is a direct-current plant?

Mr. CALVERT. A direct-current plant, yes, sir.

Mr. ANDERSON. That means heavier wires?

Mr. CALVERT. You understand the power required principally is in connection with the printing plant and machine shop, which are near the generators. Every press and machine has its individual motor, and it would require a new motor for every press or else new converters to switch over from our own central plant to the city plant.

Mr. TINCHER. Why is that?

Mr. MARVIN. Because you can not use an alternating current to run a direct-current motor.

Mr. ANDERSON. What do you have now, 220 volts?

Mr. CALVERT. One hundred and ten.

Mr. ANDERSON. Direct current?

Mr. CALVERT. One hundred and ten voltage, direct current.

Mr. JONES. There is a machine, just one machine, that makes that transfer from direct to alternating current.

Mr. LESHER. The transformer.

Mr. CALVERT. You have to convert from alternating to direct current, which is expensive, I understand.

Mr. LESHER. Oh, no; up where I come from we change over right along. It depends on the amount you want to transform.

Mr. MARVIN. That is a transformer from a high voltage to a low voltage, not converting from alternating to direct current on a rotary converter.

The CHAIRMAN. It costs at least \$16,000 a year to run this plant, does it not?

Mr. MARVIN. I think we could make progress if you would permit us to submit a supplemental statement covering the cost of the operation of the plant on definite data we can easily get at the office. But we have not come prepared, not expecting this particular question to arise, to answer your inquiries in regard to this point.

The CHAIRMAN. After all, this is the place to thresh out these questions, but you may insert a statement.

STATEMENT REGARDING THE HEAT, LIGHT, AND POWER PLANT OF THE WEATHER BUREAU.

The Weather Bureau maintains its own plant for producing heat, light, and power. Two boilers of a capacity of 100 horsepower each are used. The electric current for light and power is generated by two separate units, an 80-horsepower engine attached to a 50-kilowatt generator, and a 30-horsepower engine connected with a 25-kilowatt generator. The work of the Weather

Bureau requires that this plant be in active operation from 7 a. m. to 11 p. m., and sometimes later, every day in the year, Sundays and holidays included. The present force employed in the plant is one engineer at \$1,300, one skilled mechanic at \$1,000, one fireman and steamfitter at \$840, and three firemen at \$720. Another fireman at \$720 per annum on the statutory roll is on duty at Mount Weather. This place will be dropped when Mount Weather is sold. The engineer is in charge of the plant. He can not be expected to be on duty for the full period of 15 hours that the engines are in operation. Therefore, the skilled mechanic and the fireman and steamfitter serve in his absence on regular eight-hour shifts. A pressure of 80 pounds of steam is carried. Two employees must be on duty during this 15-hour period, one in the boiler room and the other in the engine room.

The man on duty in the engine room must keep the engines, dynamos, and switchboard under constant surveillance. It would be unsafe to leave the engine room unattended, as one man can not feed and attend to the boilers and be in the engine room at the same time. The force is divided into eight-hour shifts. Two men must be on duty when the engines are running during the period of at least 15 hours, practically two shifts. From 11 p. m. to 7 a. m. only one fireman is required. Therefore, five men must be on duty each day. In order to give these men relief one day in seven and to provide for leaves of absence and sick leave another man is required. This man is the fireman and steamfitter who acts as relief fireman. If an assistant engineer is provided, it will insure the safety and efficiency of the plant and enable the steamfitter to devote his time to the duties relating to his position and be available for firing only in emergencies. It is difficult to secure a good fireman at \$720 per annum, and to secure a man competent to take charge of the engine room at the pay of an ordinary fireman is more than can be expected.

The per-annum cost of maintaining the plant during the fiscal year ending June 30, 1919, was approximately as follows:

Salaries (not including bonus)-----	\$5,300
Coal, oil, etc-----	2,227
Miscellaneous expenses, including repairs and materials-----	497
Total-----	8,240

The question of using current supplied by commercial companies was carefully considered a few years ago. It is practicable only by the installation of expensive machinery because the Weather Bureau is outside of the direct-current area and would have to use alternating current. All of the motors, fans, and other electrical equipment in use are for 110-volt direct current. It was found that outside current could not be efficiently and economically used at the prices for outside current and machinery cost prevailing at the time the question was investigated. It would be less advantageous to do so at the prevailing high cost of labor, machinery, and material that would be required to purchase and install new apparatus. Commercial current could be used advantageously after installing new apparatus if only electric power and lights were needed, but steam must be generated in the summer months for the testing of instruments and for other purposes and to heat the buildings during cold weather, making a steam plant necessary throughout the year. To produce steam for heating and other purposes and at the same time purchase current would entail useless cost. An exact comparison cost can not be included in this statement because of the considerable time that would be required in securing quotations for the cost of new apparatus and installation.

It is believed that no economy would result in the purchase of current and that the work of the bureau would materially suffer if a change were attempted. However, the whole question will be given a careful investigation, and any changes that will effect economy and efficiency will be made without delay.

Mr. McLAUGHLIN of Michigan. Will you indicate where these repair men (items 39, 40, 42, and 43) are employed, whether in the city or outside. There are 12 of them whose salaries aggregate nearly \$10,000 for repair men. You say the first one, number 39, is a telegraph-line repair man outside of Washington; number 40 is the same. How about the item 42 (4 repair men) and the item 43 (6 repair men), where are they employed?

Mr. MARVIN. Those are outside of Washington, also.

Mr. McLAUGHLIN of Michigan. Then all of the 12 are outside of Washington?

Mr. MARVIN. All outside of Washington; yes, sir. I think that is correct, is it not, Mr. Calvert?

Mr. CALVERT. All are outside of Washington.

The CHAIRMAN. What is the nature of the work?

Mr. MARVIN. These telegraph lines are run in very difficult places where no commercial company will run a line. That is the reason we have put the lines in. There is one running from Norfolk to Cape Henry and from Cape Henry to Cape Hatteras, along the coast. It is the only telegraph line on that coast. Originally it was erected for the Weather Bureau's work alone, but it is now used by the Coast Guard and the Navy Department and they aid us in maintaining it. Some of these repair men are on this line. We have another line in the State of Washington, running from Port Angeles to Tatoosh Island.

The CHAIRMAN. What is the length of the line?

Mr. MARVIN. That line is about 50 miles, I think.

The CHAIRMAN. Fifty miles?

Mr. MARVIN. Fifty miles in length.

The CHAIRMAN. How many repair men are there on that line?

Mr. MARVIN. It runs through a densely wooded tract and is very difficult to maintain.

Mr. CALVERT. Which line is this under discussion?

Mr. MARVIN. Port Angeles-Tatoosh Island line.

Mr. CALVERT. There are four repair men on that line. It is the most difficult line we have to maintain, because it goes, most of it, through virgin forests.

The CHAIRMAN. How long is it?

Mr. CALVERT. I have the exact length of that line, 95 miles.

Mr. MARVIN. It is not a very long line. None of these are very long.

The CHAIRMAN. Can you give the length of the others?

Mr. CALVERT. The Cape Henry line is 162 miles.

The CHAIRMAN. How many repair men are used on it?

Mr. CALVERT. There are only two, because it runs through a country where the repair work is not nearly so difficult.

The CHAIRMAN. Can you give the length of each?

Mr. MARVIN. The San Francisco-Point Reyes Light line.

Mr. CALVERT. The San Francisco-Point Reyes line is 70 miles long.

Mr. HUTCHINSON. How much time do these men give as repair-men?

Mr. CALVERT. These men, you might say, are constantly on duty.

Mr. HUTCHINSON. All the time?

Mr. CALVERT. All the time. Most of them are at isolated places along the line. In addition to taking care of all the repair work necessary in their maintenance, they are telegraph operators.

Mr. HUTCHINSON. Do you have any trouble in filling the positions?

Mr. CALVERT. We do.

The CHAIRMAN. Item No. 41, one gardener; what does he do?

Mr. MARVIN. The gardener takes care of the grounds of our property that I mentioned.

The CHAIRMAN. The property here in the city?

Mr. MARVIN. Here in the city; yes, sir.

The CHAIRMAN. It is about a quarter of a block?

Mr. MARVIN. It is about a third of a block. It is Twenty-fourth and M. Streets. The Columbia Hospital and the Weather Bureau occupy the whole block.

The CHAIRMAN. What are his duties?

Mr. MARVIN. We have the gardener to take care of the grounds around the building, to keep them in presentable and respectable appearance. In the wintertime he does work with the laboring force in the buildings.

The CHAIRMAN. You mean mowing the lawn?

Mr. MARVIN. Yes sir; and keeping a few flower beds and the shrubbery in proper condition.

The CHAIRMAN. How about item No. 45, 28 messengers?

Mr. JONES. There are 166 messengers.

The CHAIRMAN. Yes; but I am referring only to those under item 45, at \$720.

Mr. MARVIN. There seems to be a large number of the messengers, but most of them are in the field. We have 200 stations, but not every station has a messenger. Very many of them have one messenger at least, and sometimes we are obliged to put in two messengers under the existing conditions. We have difficulty in securing them at the low salaries allowed.

Mr. TINCHER. What do they do?

Mr. MARVIN. They work in the offices in connection with the preparation of the forecast cards and operate addressographs and distribute maps and bulletins. They also do other work about the station in connection with the maintenance of the instrumental equipment and things of that kind.

The CHAIRMAN. How many are employed at each station in each town?

Mr. MARVIN. We have a small number of stations with only one man on duty.

The CHAIRMAN. About how many?

Mr. MARVIN. I should say there are 15 or 20 that have only one man. The rest of the stations, with a few exceptions, have from two to seven men, and a few of the large ones from 10 to 15.

Mr. JONES. How many stations did you say you had?

Mr. MARVIN. In round numbers, 200 full reporting stations.

Mr. RUBEN. I notice you have a gentleman who comes over to the Capitol every morning and fixes up the map over there. What is his title?

Mr. MARVIN. He is a meteorologist. We have work of that character in a considerable number of cities. Some of that work had to be discontinued during the war. We want some increases to enable us to restore work which was suspended from necessity.

The CHAIRMAN. Will you prepare a statement as to the cost of this lighting plant?

Mr. MARVIN. Yes, sir.

The CHAIRMAN. And also an estimate as to the cost of the service from the outside?

Mr. CALVERT. You say a comparison between what it will cost for outside current alone, and what it costs to maintain this plant?

The CHAIRMAN. Yes.

NOTE.—This information is incorporated in the statement on page 15.

Mr. MARVIN. Now, Mr. Chairman, before we leave the statutory roll, I should like to bring to your attention here, because I think the committee should know it, a feature of the statutory roll that is not covered in the estimates. I would like to invite your attention to item 20 (one printer or compositor), item 21 (six printers or compositors), and item 22 (five printers or compositors).

The CHAIRMAN. I understand you are not asking for any increase in salaries?

Mr. MARVIN. No, sir.

The CHAIRMAN. And we are not taking that matter up for consideration at this time; it has not been estimated for. It will be left for future consideration.

Mr. MARVIN. These men work in the field and the reclassification work is supposed to deal with people in Washington; but they are carried on the statutory roll.

Mr. McLAUGHLIN of Michigan. All these men you employ under items 20, 21, and 22 are in the field, you say?

Mr. MARVIN. Are in the field. We can not keep these places filled. There are vacancies occurring in them and it is impossible to employ printers at the low salaries of \$1,000 and \$1,080. We have been compelled to employ emergency printers at union wages on account of the vacancies.

Mr. JONES. They get the bonus, do they not?

Mr. MARVIN. Yes, sir. We have been compelled to employ emergency printers at union wages, at wages much higher than this. More than that, we have to pay their wages from the miscellaneous roll. The salaries provided on the statutory roll go back into the Treasury. We can not use that money for the emergency employments. It has to be taken from the miscellaneous roll at a cost higher than that paid the printers in item 19, of \$1,300. What I desire is to have these places made the same, \$1,300, to equalize them. The work of the Reclassification Commission does not extend to the men in the field, and these men are in the field. There also is the case of one skilled mechanic at \$840 (item 31). Now, I do not need to argue that you can not employ much of a mechanic at \$840.

Mr. JONES. That is item 28?

Mr. MARVIN. That is item 31.

Mr. JONES. You have one skilled mechanic in item 28 (one skilled mechanic, \$1,300).

Mr. MARVIN. That is true.

Mr. JONES. Is that the same thing?

Mr. MARVIN. It is not the same mechanic. The skilled mechanic at \$840 to which I refer is a man who has been with us for a number of years. He is engaged very largely in making kites which we use in aerological work.

Mr. JONES. I made a notation of \$720 with a minus sign of the amount appropriated for the fiscal year ending June 30, 1920.

The CHAIRMAN. If you are through, I would like to call your attention to a communication from Judge Moon as to the salaries in Chattanooga and Knoxville. He advises me that the Government

observer at Knoxville is getting \$400 a year more than the observer at Chattanooga, and says:

I write to call your attention to this matter, with the hope that you may be able to do something in the interest of the observers in the class in which Mr. Pindell belongs.

How do you equalize salaries? Are they all paid the same?

Mr. MARVIN. Mr. Chairman, I doubt if there is any branch of the Government that is measuring out justice, the even-handed justice, to its employees in greater degree than that which characterizes the administration of the salaries of the Weather Bureau men.

For several years we have had in operation a plan which the Secretary introduced in the department of classifying the employees in the order of their merit, ability, and efficiency, and claims for advancement, and all that. The efficiency ratings are prepared by a committee of employees and promotions are made accordingly; that is, whenever it is possible to make promotions. We can not make promotions until money is available, but when promotions can be made we give them to the men who have the highest positions on the register. Now, there are lots of deserving men (Mr. Pindell is one of them) who ought to have more money than they are receiving, but to take it away from some other man and give it to Mr. Pindell would not be right.

The CHAIRMAN. You pay \$400 more to one than to the other because of their duties to the city that they are in?

Mr. MARVIN. It depends not only on the size of the city but upon the value of the man's service, ability, and qualifications, and all that.

The CHAIRMAN. The size of the city does not enter into consideration?

Mr. MARVIN. It does enter into consideration to a certain degree; but you can readily see we can not fix the salary of an employee based entirely on the size of the city in which he serves. We are obliged to change men from one place to another and to follow such a plan would necessitate changing salaries with every assignment.

Mr. McLAUGHLIN of Michigan. Is the work in the different cities largely the same?

Mr. MARVIN. It differs with the cities. It is not any more the same in the different cities than the cities are the same themselves; there are all sorts of differences. One city may be comparatively unimportant in a civic sense, but may be very important from the standpoint of our work. But to a certain degree the salaries of the men in the larger cities are uniformly higher than are the salaries of the men in the smaller cities where the responsibility is less. But the question apparently raised by that letter (I should like to read it a little more carefully) is one of discrimination between the two men.

Mr. HUTCHINSON. The men in the two cities have the same titles, do they not?

Mr. MARVIN. Both are meteorologists.

Mr. HUTCHINSON. All of them?

Mr. MARVIN. All of our station men engaged on scientific work are meteorologists and observers.

Mr. HUTCHINSON. And you have it fixed in the law, the salaries each one of them shall receive, and can not vary it?

Mr. MARVIN. No, sir; there is no law which fixes the salary of these men.

Mr. HUTCHINSON. You have no bulk appropriation, have you, out of which to pay these men?

Mr. MARVIN. They are paid from lump-sum appropriations.

Mr. HUTCHINSON. That is a lump-sum appropriation.

Mr. MARVIN. Yes, sir; lump-sum appropriations; but it has no reference to this particular roll we are discussing now, which is statutory.

The skilled mechanic to which I have made reference has been making all of our kites in upper air observation work. He has been with us for a long time and is getting only \$840 a year.

The CHAIRMAN. In this connection, let me call your attention to another communication, which reads:

I am informed by the Chief of the Weather Bureau that it has been necessary for the bureau, on account of lack of funds, to discontinue the publication of the daily weather map in about sixty cities in the United States. Among them are Pittsburgh, Kansas City, Minneapolis, and Milwaukee.

Have you any comment to make on it?

Mr. MARVIN. We have included in the estimates funds to do that. We want to restore that work. However, that pertains to the field and has nothing to do with this part of the estimates.

The CHAIRMAN. We will come to that later, then?

Mr. MARVIN. Yes, sir; I will invite your attention to it when we come to the item.

Before closing my remarks on the statutory roll, I wish to ask that these printers, and this mechanic, be placed on a par with the other men.

Mr. McLAUGHLIN of Michigan. Which mechanic is that?

Mr. JONES. Item 31—one skilled mechanic, \$840.

Mr. MARVIN. Yes, sir. The particular man there is certainly entitled to \$1,200. He is a man we could not replace from any carpenter trade in the country without a long training to do the particularly difficult work of making kites.

Mr. HUTCHINSON. Is he just as good a man as 28—one skilled mechanic at \$1,300?

Mr. MARVIN. Yes, sir; in his line.

Mr. HUTCHINSON. Then why should you make it \$1,200?

Mr. MARVIN. I have only asked you to make it \$1,200.

Mr. TINCHER. What does the item "28" at \$1,300 man do?

Mr. MARVIN. That is one skilled mechanic at the central office at \$1,300. He is a carpenter?

Mr. CALVERT. He is our foreman carpenter.

Mr. MARVIN. That is what I thought; I was not sure. But only in this one respect, that he is our foreman, is there a reason the mechanic in the field should be paid less than the one skilled mechanic at \$1,300.

Mr. TINCHER. What is number 28's name?

Mr. MARVIN. That is Mr. J. A. Balster, I believe.

Mr. TINCHER. What is number 31's name?

Mr. MARVIN. Dahl Baxter.

Mr. HUTCHINSON. You say number 31 is a man in the field. Do you pay his expenses when in the field?

Mr. MARVIN. No, sir; we pay no expenses.

Mr. HUTCHINSON. You pay no expenses to anybody?

Mr. MARVIN. Only when traveling.

Mr. HUTCHINSON. He is located at one place?

Mr. MARVIN. Yes, he is located at Drexel, Nebr.

Mr. LESHER. How much printing do these printers have to do each day?

Mr. MARVIN. I have brought samples of their work with me. They get out these leaflets and bulletins that we issue every day at the different stations. Here are the different kinds of publications we issue. They vary somewhat at the different States. This work has got to be done on the minute. The observations shown on the maps issued at stations all over the country are made at 8 o'clock in the morning, and at half past ten or eleven they are ready for delivery to the people. That is rapid work.

Mr. LESHER. A part of a whole lot of these forms is set up right along?

Mr. MARVIN. It is set-up work, but changes require busy printing work during the rush hours. After the maps and bulletins are issued they have this kind, the State climatological reports, to do. These are prepared in the field, one of each of these each month, at certain of the field stations. We have 200 stations, and there are only, as you will notice there, a comparatively small number of printers, about 30 altogether. As a rule one printer does the work on two State reports.

The next item of the estimates, item 52, the general language remains unchanged. Item 53 is for the maintenance of the printing office in the city of Washington. There is a slight increase of \$2,200 asked for in that item.

Mr. JONES. Where is that?

Mr. MARVIN. That is on page 28, at the top, General Expenses, Weather Bureau—Continued, item 53, "For necessary expenses in the city of Washington incident to collecting and disseminating meteorological, climatological, and marine information, and for investigations in meteorology, climatology, seismology, volcanology, evaporation, and aerology, \$116,190."

Mr. JONES. That is \$116,190?

Mr. MARVIN. Yes, sir; an increase of \$6,940.

Mr. JONES. That is the whole thing, is it not?

Mr. MARVIN. Item 53 is for expenses in the city of Washington.

Mr. JONES. What I would like to know is this: We have gone over this statutory roll. You have this for maintenance. It is not itemized at all. It is \$116,000. It is itemized down below here, employees?

Mr. MARVIN. Yes, sir. It is the same form as in previous years for appropriations of this kind.

Mr. JONES. And none of those items are included in this statutory roll?

Mr. MARVIN. No, sir; it is an entirely separate statement of expenditures.

Mr. TINCHER. You had \$109,250 in 1920 that was spent under this item. Would it not be possible to itemize that for the committee?

Mr. MARVIN. The actual manner in which that was spent has been itemized.

Mr. TINCHER. I guess it is right on that page, is it not?

Mr. MARVIN. Yes; it is itemized. Down at the bottom you will see that we spent for salaries so much money, and so much for stationery, equipment, and material, telephone and telegraph and miscellaneous items.

Mr. JONES. You expended for 1919 \$102,503 for the same things that you ask for now \$116,190, is not that true?

Mr. MARVIN. Yes, sir.

Mr. JONES. Why do you ask for this additional \$6,940 increase in what you estimate for 1921 over what you expended in 1919?

Mr. MARVIN. The addition is required for proposed extensions of work in the field which we explain later in the estimates.

Mr. JONES. \$10,000 of it is in salaries, and then you deduct the difference from your salaries?

Mr. MARVIN. Those extensions of work in the field necessarily entail more work at the central office in compilation, study, and supervision. We ask for \$6,940 for salaries, \$5,500 incident to the vessel reporting work in the field, and \$1,440 is for the work involved in taking over the control of certain work in the field that is being conducted by the Bureau of Plant Industry. It is meteorological work. The administration of these two lines of work—the vessel reporting and the western planes observations now controlled by the Bureau of Plant Industry—justify an addition in the central office expenses of \$5,500 in the one case and \$1,440 in the other.

Mr. JONES. What I want you to explain is: You expended in 1919 for 29 employees \$46,232.17; now you are asking in your estimates for 1921 for 28 employees \$56,700, almost \$9,000 more.

Mr. MARVIN. There is a hiatus there of one year. The amount we expended in 1919 and what we expect to spend in 1921 are shown; no figures are shown for 1920, the current year, and they must come in to clear up the comparison.

Mr. McLAUGHLIN of Michigan. You propose to employ fewer men than you did in 1919, and with a great deal more work, you say, and you performed that additional work by paying your men about \$10,000 more money.

Mr. MARVIN. The comparison must be made with the 1920 appropriation and the 1921 estimate here, I think.

Mr. McLAUGHLIN of Michigan. The work has increased over what it was in 1910, has it not?

Mr. MARVIN. Yes, sir.

Mr. McLAUGHLIN of Michigan. You are doing it with fewer men? The CHAIRMAN. According to your statement, you propose to pay \$10,467 more to 28 men in 1921 than you did to 29 men in 1919. There will be an increase in salaries there, will there not?

Mr. MARVIN. There has been an increase of salaries during 1920.

The CHAIRMAN. I mean over 1919.

Mr. MARVIN. Mr. Calvert will explain this.

Mr. JONES. It is carried on here as temporary employment, and now you want to make it permanent employment.

Mr. MARVIN. The temporary employees are carried part of the time, of course, and it makes the total number appear larger.

Mr. JONES. In 1919 you expended \$102,503.45, in 1920 the appropriation allowed was \$102,250; that is right, is it not?

Mr. MARVIN. Yes, sir.

Mr. JONES. And for 1921 you ask \$116,190; that is right, is it not?

Mr. MARVIN. Yes, sir; that is an increase of \$6,940.

Mr. JONES. Over 1920, an increase of almost \$14,000 over 1919.

Mr. MARVIN. That is the increase which came in 1919 and 1920.

Mr. JONES. Yes; and nearly \$10,000 of that increase is in salaries, with a less number of men in the period of the years 1919, 1920, and 1921.

Mr. MARVIN. I do not think we can make that comparison, unless we consider 1920.

Mr. JONES. That is a fact, is it not, from your statement that you have rendered here?

Mr. MARVIN. It is a comparison on account of these temporary employees.

Mr. JONES. Yes, I know.

Mr. McLAUGHLIN of Michigan. How many were temporarily employed in 1920?

Mr. MARVIN. The employment of the 28 men in 1921 includes, of course, this estimate of the increase of \$6,940. The question is simply whether the appropriation of \$109,250 which we had last year should not be increased \$6,940 in order to take over this vessel reporting work and the western planes observations of the Bureau of Plant Industry.

Mr. McLAUGHLIN of Michigan. I can see how there should be this additional work, Doctor, but you are doing it with fewer men than you had before when you did not have it.

Mr. MARVIN. The seemingly fewer men there is explained by the fact that many of these men in 1919 were temporary men.

Mr. TINCHER. This shows how many were temporary, one temporary, seven part time, one temporary and one temporary.

Mr. MARVIN. That was during the war time, as you see, gentlemen, and some of our men in the central office were on military duty at that time, and we had some temporary men and part time men.

Mr. CALVERT. As a matter of fact, the average of the number of men employed during that time was not over 25; the number engaged at any one time was not over 25.

Mr. McLAUGHLIN of Michigan. Do you not account for a part of that increase that you ask by the fact that you have increased some of the salaries that appear in that first column?

Mr. MARVIN. No, I do not think so at all. These changes that occurred in the rolls during 1920 belong to the 1920 estimates.

Mr. JONES. This first column shows the rate you will pay them in 1921 over what you paid them in 1919?

Mr. MARVIN. The first column shows what we are going to pay next year.

Mr. HUTCHINSON. Is that an increase in there, or is that the same as it was last year?

Mr. MARVIN. We ask to have it increased \$6,940.

Mr. HUTCHINSON. On any one item, or is that on all of them?

Mr. MARVIN. It is on the general item, \$109,250. We want that increased \$6,940.

Mr. HUTCHINSON. That means additional men—not an increase of each one of these men's salaries?

Mr. MARVIN. Yes, sir; it is not for promotions; it is for additional men.

Mr. HUTCHINSON. In other words, the work in the Weather Bureau has not been increased in the last four or five years, has it?

Mr. MARVIN. The work has increased but the pay of the office force on this roll has remained nearly stationary.

Mr. JONES. Let me get that understood. I do not know whether I understand you. On page 28, Mr. Marvin, under the column "Rate," you have salaries there for meteorologists and so on, professor of meteorology, and so on down the line. It is not totaled. Are those the salaries you are paying now?

Mr. MARVIN. Practically the salaries we are paying now; yes, sir.

Mr. JONES. What did you make that up from, from the salary pay rolls now, or from the estimated pay roll that you propose to make?

Mr. MARVIN. That is made from the pay roll we are working under now, with the addition of several new places that we are asking for here.

Mr. JONES. Then that is based on your requests, and not on your pay roll?

Mr. MARVIN. Yes, on our requests based upon estimated additions to the present roll.

Mr. JONES. That is what I am trying to get at. It is not what you are paying now?

Mr. MARVIN. Partly, but it is an estimate.

Mr. JONES. Have you got a list of what you are paying these same men now?

Mr. TINCHER. There it is there.

Mr. JONES. That is what they contemplate paying. You have estimated in here for one meteorologist at \$3,960. Have you got one man at that salary now?

Mr. MARVIN. Yes, sir.

Mr. JONES. You have a meteorologist at \$3,500. Have you one at that price now?

Mr. MARVIN. Yes, sir.

Mr. JONES. You have another one at \$3,250. Have you one at that price now?

Mr. MARVIN. Yes, sir.

Mr. JONES. Then you have another one at \$2,160. Have you one at that price?

Mr. MARVIN. Yes, sir.

Mr. JONES. One at \$1,800?

Mr. MARVIN. Yes, sir, but we wish two new places at that salary.

Mr. TINCHER. They have three at \$1,800 and they are asking for five.

Mr. JONES. You have three at that salary now and you are asking for two new ones.

Mr. MARVIN. Yes, sir.

Mr. RAINEY. There has been no increase in salaries, but the increase of \$6,940 is caused by four new men.

Mr. MARVIN. Yes, sir.

Mr. TINCHER. You have a lithographer at \$1,500. That is something you intend to add? You have not that now?

Mr. MARVIN. That is another case of a temporary employee. Here is the statutory roll which gives us a lithographer for \$1,200. We worked months trying to get somebody to accept that salary as a lithographer. We could not get one to accept it. We had to take a man and pay him \$1,500 out of this lump fund, and we kept him for a little while and dropped him when we could cut off some of the work, but in the meantime the money for the \$1,200 place on the statutory roll was going back to the Treasury, and it was difficult to do the work, and, in fact, we had to drop some of the work later.

The CHAIRMAN. In this connection it may be well to have an explanation of this table, and a statement by what authority it is in the record.

Mr. HARRISON. I think we ought to make it clear, Prof. Marvin, that the form used in presenting these statements is prescribed by the Treasury Department under a provision in one of the appropriation bills. We have no discretion in the matter. You will note that the statements show the expenditures for the last completed fiscal year, in this case the fiscal year 1919. I will have inserted in the record a copy of the law which requires this statement.

(The statement referred to follows:)

[Act. Aug. 1, 1914, 38 Stat., 680.]

AMENDMENT OF SECTION 6, ACT AUGUST 24, 1912, CHAPTER 355.

Sec. 10. That section 6 of the sundry civil appropriation act approved August 24, 1912, is amended to read as follows:

"Sec. 6. That there shall be submitted hereafter, in the annual Book of Estimates following every estimate for a general or lump-sum appropriation, except public buildings or other public works constructed under contract, a statement showing in parallel columns:

"First, the number of persons, if any, intended to be employed and the rates of compensation to each, and the amounts contemplated to be expended for each of any other objects or classes of expenditures specified or contemplated in the estimate, including a statement of estimated unit cost of any construction work proposed to be done; and

"Second, the number of persons, if any, employed and the rate of compensation paid each, and the amounts expended for each other object or class of expenditure and the actual unit cost of any construction work done, out of the appropriation corresponding to the estimate so submitted, during the completed fiscal year next preceding the period for which the estimate is submitted.

"Other notes shall not be submitted following any estimate embraced in the annual Book of Estimates other than such as shall suggest changes in form or order of arrangement of estimates and appropriations and reasons for such changes."

Mr. RUBEX. Let me ask you right there—in 1919 we appropriated \$109,250.

Mr. HARRISON. That is 1920, Gov. Rubey.

Mr. RUBEX. The same in 1919. In 1919 the appropriation was \$109,250.

Mr. HARRISON. Yes, sir.

Mr. RUBEX. This last column here, "Expended 1919," totals up \$102,503.45, or a difference of \$6,746.55, but they turned that \$6,746.55 back into the Treasury, did they not?

Mr. HARRISON. All unexpended balances go back into the Treasury.

Mr. RUBEY. Then you actually expended the \$102,000?

Mr. HARRISON. Yes, sir. You gentlemen appreciate that we have to allow some margin. There is a law which makes it a criminal offense to exceed appropriations, and at the beginning of the year we have to apportion our funds in such a way that we will not exceed them. There is always an unexpended balance in every appropriation, but the amount will vary in each case. We have to protect ourselves. Then men do not want to go to jail.

There are many explanations why the full amount appropriated is not expended. For example, places may be provided for new employees, and it may take us three months to get the employees. That means that we have a salary charge for only nine months of the year. Then there are temporary employees. There are eight temporary employees shown in the table before you.

Mr. RUBEY. You have estimated for \$116,190.

Mr. HARRISON. Yes, sir.

Mr. RUBEY. I will ask you is it probable that at the end of the next fiscal year, 1921, for which this is appropriated, you will not have expended quite all of that sum?

Mr. HARRISON. That is entirely probable. In one year under the food and drugs act we turned back into the Treasury nearly \$100,000.

Mr. RUBEY. There is another point about it and that is this: We make these appropriations along in January, and the bill which is passed and becomes a law goes into effect the following July, and you have some four or five months there in which to get ready for the 1st of July and find your men if you can find them.

Mr. HARRISON. Except for the last two or three years when our appropriation bill became a law around October or November.

There is another thing which ought to be considered. We begin making these estimates up in July. Just think of the difficulty of having to estimate exactly what our expenditures are going to be at the close of the next fiscal year, nearly two years from the time we began to make up our estimates! I think you gentlemen should bear that in mind in considering these matters. They are estimates. They are the best estimates we can make, based on long experience, but it is an exceedingly difficult undertaking.

Mr. RUBEY. While I am on that proposition I want to call your attention to the estimate there set forth on page 28. It shows here the appropriations for the previous years. It shows the appropriation for 1911, so much, and then it goes on and shows the estimate for 1912, \$114,000, and then back in the first column it shows the appropriation for 1912, \$106,000. Now, for the benefit of the committee I think you ought to reverse that whole business and put down your estimate first, and then on the opposite side, on the same line, you ought to have the appropriation made for that year.

Mr. HARRISON. We will be glad to do that next year, Governor.

Mr. RUBEY. You have got to start in there and look backward and downward to find out what the appropriation was.

Mr. HARRISON. If you will follow this column you will see, for instance, the appropriation for 1911, and then the next item is the appropriation for 1912.

Mr. RUBEY. You ought to put the amount estimated for in the first column, and the amount appropriated in the next column.

Mr. HARRISON. We will do that next year.

Mr. RUBEY. It would be more convenient for the committee in looking them over.

Mr. HARRISON. We will be glad, indeed, to make any changes in these estimates that the committee may suggest. Our sole desire is to put them up in the most satisfactory way and to give the committee the information it desires. We will do that next year, Gov. Rubey. This is the first time these tables have appeared in these estimates. They were inserted at the suggestion of Mr. Haugen.

Mr. RUBEY. In looking over these estimates, I find in the Bureau of Markets that they followed that plan of putting the estimates in the first column, and you put them on the same line.

Mr. HARRISON. We will be glad to comply with that suggestion next year.

Mr. MARVIN. This appropriation of \$109,250, you will note, has been in effect since 1917; that is, the fiscal year ended June 30, 1917.

Mr. RUBEY. You have not had any increases?

Mr. MARVIN. We have not had any increase, but now we ask for an increase of \$6,940.

The CHAIRMAN. Are there any further questions on this item?

Mr. McLAUGHLIN of Michigan. What is this new work that you are going to do in connection with the Bureau of Plant Industry?

Mr. MARVIN. A few years ago the Bureau of Plant Industry, in connection with the problems of determining the best processes in dry-land farming, put up certain stations on farm lands in the West, in the semiarid regions, for determining the evaporation of water and temperature conditions at points at which the Weather Bureau had no stations, and for which we could not furnish specific meteorological data that they needed in these investigations. The work has been going on, and they simply made observations in connection with that study. It is important to continue that work and to assemble and collect the meteorological observations and publish the results. That is properly the function of the Weather Bureau.

Mr. McLAUGHLIN of Michigan. Item 53.

Mr. RUBEY. That is an increase in force necessary to carry on that work, for which you ask an increase of something like \$69,000 in that item.

Mr. MARVIN. In that item; yes, sir. It is a part of that increase, but the amount intended for investigations is very small.

Mr. McLAUGHLIN of Michigan. Previous to this time, then, the Bureau of Plant Industry has been making those observations itself, and your bureau has had nothing to do with them?

Mr. MARVIN. We have had nothing to do with them. Plant Industry men have been making the observations, compiled the data, and studied it to a certain extent, but in its present form it is unavailable for general use.

Mr. McLAUGHLIN of Michigan. Why unavailable?

Mr. MARVIN. It has not been published. It is the duty of the Weather Bureau to take up and publish that sort of observation work, and under an agreement with the Chief of the Bureau of Plant Industry, and with the approval of the Secretary's office, it is proposed to transfer that work to the Weather Bureau, which will have to have some additional appropriation for the purpose.

Mr. McLAUGHLIN of Michigan. At these several stations the Bureau of Plant Industry has had men to do that kind of work?

Mr. MARVIN. They are making those observations yet, and will continue to do so, without any expense.

Mr. McLAUGHLIN of Michigan. Until you take them up?

Mr. MARVIN. And after we take them up. The two bureaus will cooperate.

Mr. McLAUGHLIN of Michigan. Then your representatives and the representatives of the Bureau of Plant Industry will both be there doing the same work?

Mr. MARVIN. No, sir; no representative of the Weather Bureau will take the observations. We will continue to use the plant industry men in the field to make the observations, but the records will come to us. You will notice the expense here is in the city of Washington for that work. The observational work in the field costs very little, simply for material, forms, and records. The work will come into the office, and we have asked for \$1,440 for the services of one man in connection with tabulating, compiling, studying, and publishing the data.

Mr. McLAUGHLIN of Michigan. Up to this time, into what office here have those reports been made?

Mr. MARVIN. The Bureau of Plant Industry; but they have never been published; they have been used only in connection with one project for which the observations primarily were taken.

Mr. HARRISON. Professor, have you made it clear that the Bureau of Plant Industry has not employed anyone to do this work solely? As I understand it, it has been done incidentally by the men at these field stations of the Bureau of Plant Industry in the course of their regular work.

Mr. MARVIN. I did not so state, but that is the fact. The men at the field stations of the Bureau of Plant Industry are there for other purposes, and have done this work incidentally, and will continue to do the other work just as heretofore.

Mr. McLAUGHLIN of Michigan. The work has been satisfactorily done?

Mr. MARVIN. We think so; yes, sir. It has been under the supervision of a very competent man.

Mr. McLAUGHLIN of Michigan. You do not propose now or at any time to put any of your agents there?

Mr. MARVIN. No, sir; not at all, because as long as they are willing to furnish us—

Mr. HARRISON. It merely transfers the supervision of meteorological work to the place where it really belongs, namely, the Weather Bureau.

Mr. McLAUGHLIN of Michigan. You keep the records here?

Mr. HARRISON. We keep the records here.

Mr. McLAUGHLIN of Michigan. The reports made by the agents of the Bureau of Plant Industry?

Mr. HARRISON. Yes, sir. Of course, the work will be supervised by the Weather Bureau, and they will suggest forms on which the reports should be made, and will improve their character so that they will be generally useful in connection with meteorological work. This meteorological work ought to be done by the Weather Bureau, in cooperation with the Bureau of Plant Industry. It is simply an attempt to put the work where it really belongs and to a duplication of effort.

Mr. McLAUGHLIN of Michigan. It looks to me like it may lead to a duplication of effort.

Mr. HARRISON. Not when it is supervised by the Weather Bureau.

Mr. McLAUGHLIN of Michigan. It will, if all of these meteorological investigations they are making out there are being made by the agents of the Bureau of Plant Industry, and later will be carried on by the agents of the Weather Bureau who later will be employed there from the Weather Bureau to do that work.

Mr. HARRISON. That is not in contemplation at all, Mr. McLaughlin.

Mr. MARVIN. Mr. McLaughlin, that observation work is practically the same as what we are doing all over the United States in a similar way by men who receive no compensation at all. We have nearly 5,000 stations in the field where we obtain observations somewhat similar to these, for which we pay no salaries whatever. The men are public-spirited gentlemen. They make observations once a day or oftener, and receive no compensation. In this case the men of the Bureau of Plant Industry make the few observations a day required, in addition to their other duties, which absorb practically all of their time. We take the results of those observations and make them useful in meteorological science. The results of the observations are the things that the Weather Bureau takes over now. The actual reading of the instruments will be made by the members of the Bureau of Plant Industry, for which they receive no additional compensation. There is no intention to expand that work particularly, and all it is going to cost you is this \$1,440 in the central office administration of that work, and there is \$900 for the work in the field, in the maintenance of the instruments, and occasional travel to inspect the equipment at stations, and incidental expenses of that sort.

Mr. McLAUGHLIN of Michigan. Do they find by their observations that different conditions exist one year from another, and so on? Are there not certain settled well-known conditions out there, or in a brief time can be known?

Mr. MARVIN. Those conditions have never been minutely studied in connection with the operations of farming in semiarid regions, where it is necessary to conserve every ounce of rain that falls, and it was necessary to institute these stations in order to collect definite information along that line. Now, the data collected so far has been of value to the dry-farming work. I am not prepared to speak in regard to the dry-farming operations themselves, but the meteorological conditions in connection with it change year after year, and they want a sufficiently long record to show what the fluctuations are from year to year, and on what basis dry farming can be advocated and prosecuted successfully over a long time.

The CHAIRMAN. In regard to this figure, \$6,940, it is proposed now that the service shall be paid for out of that fund instead of the Bureau of Plant Industry's fund?

Mr. MARVIN. There is only \$1,440 in that.

The CHAIRMAN. To be paid by your bureau?

Mr. MARVIN. By my bureau. There is \$1,440 to be paid by my bureau in Washington to enable us to take over work in dry-farming sections.

The CHAIRMAN. Has any reduction been made in the Bureau of Plant Industry?

Mr. HARRISON. There was no reduction because, as I explained, these people in the Bureau of Plant Industry are merely doing the work as a part of their other duties. They are not employed to take these observations. They are employed for other purposes, the study of scientific problems in connection with dry-land agriculture.

The CHAIRMAN. You propose to employ help in your bureau to do the work that is being done by them?

Mr. HARRISON. No; as Prof. Marvin indicated, we do not expect to employ any people to do the work.

The CHAIRMAN. You increased it \$1,440?

Mr. HARRISON. That is in connection with the office here, and involves the supervision of the work, the checking and compilation of the reports, and putting them in form for publication so that they will be available for use in connection with general meteorological matters. The information has been used solely heretofore by the Bureau of Plant Industry in the study of its scientific problems. The purpose of it is to make these data available for general use.

Mr. McLAUGHLIN of Michigan. Will you be able to dispense, then, with the services of anybody in the Bureau of Plant Industry here who has been receiving and keeping those records?

Mr. HARRISON. No, sir; we will not, Mr. McLaughlin. If you wish to go into the details about that, Mr. Taylor, when he comes before you, will explain the situation.

The CHAIRMAN. Is this \$1,440 for the compilation and dissemination of the information.

Mr. HARRISON. It is for compiling and putting it in shape and checking up the reports as they come from the field stations of the Bureau of Plant Industry.

The CHAIRMAN. Was that done before by the Bureau of Plant Industry?

Mr. HARRISON. Yes, it was done in the regular course of their investigations.

The CHAIRMAN. Why should there not be a corresponding reduction in the Bureau of Plant Industry?

Mr. MARVIN. I do not think the Bureau of Plant Industry has done all they would like to have done with the data.

The CHAIRMAN. You propose to enlarge upon the service?

Mr. MARVIN. No, sir; we propose to collect those reports that have been made in the past, and continue them in the future, and put them up in tabulated form and publish them so that they will be available for students of agriculture.

The CHAIRMAN. What was done in the past?

Mr. MARVIN. Nothing but making and recording the observations. That is the point. It has not been done in the past as completely as it should have been done.

The CHAIRMAN. Of what value were they if they were not compiled?

Mr. MARVIN. They were used by the particular individuals that were actually engaged on that work, but because they were not published and are not in systematic form, they are not available for the

general study of agriculturists at experiment stations and elsewhere who are interested in that work. We want to get them together and put them into our monthly publications along with other meteorological data, so that one can have these reports hereafter, not only the past reports, but the new ones. That is the reason it is impracticable to consider a reduction.

The CHAIRMAN. Then it is to compile, publish and disseminate the information; is that it?

Mr. MARVIN. Yes, sir.

Mr. RUBEY. The total cost will be \$1,440?

Mr. MARVIN. \$1,440 in the city of Washington.

That brings us, Mr. Chairman, to item 54, "for the maintenance of a printing office in the city of Washington for the printing of weather maps, bulletins, circulars, forms, and other publications."

The CHAIRMAN. There is an increase of \$2,200?

Mr. HARRISON. An increase of \$2,200.

Mr. MARVIN. We ask for that in order to meet the great increase in the cost of paper, ink, and printing supplies. Everything that we pay for must be paid for at a higher rate now than formerly. It is a small increase. Item 55 is "for necessary expenses outside of the city of Washington, incident to collecting and disseminating meteorological, climatological, and marine information, and for investigations in meteorology, climatology, seismology, volcanology, evaporation, and aerology."

There is an increase in that fund which has been alluded to in the previous remarks a number of times. In the note at the top of page 30 this increase is explained. It says there that there is an apparent increase of \$69,200, but an actual increase of \$70,400, because \$1,200 has been transferred to the statutory roll. The increase is for several different items of work as follows:

(a) Rehabilitation and normal growth of the regular forecast and warning work of the bureau, which has fallen behind and been curtailed under stationary appropriations during war conditions and high cost of supplies, services, etc.

(b) Extension and betterment of the vessel weather-reporting service in the Gulf and Caribbean Sea, also to extend this service to the Pacific coast, where it has been needed, but only now practicable by the presence in these waters of merchant vessels equipped with wireless.

(c) Enlargement of the fruit frost work.

(d) Inauguration of 48 to 72-hour advance rain forecast at certain times and in certain places for more effective spraying of orchards.

(e) Extension of the cattle region service to Montana for aiding in the raising of live stock by reporting weather and grazing conditions, giving notice of damaging storms, etc.

The CHAIRMAN. What is the character of the service last mentioned?

Mr. MARVIN. In the cattle raising regions we secure a number of reports from the ranges and grazing tracts occupied by cattle that show the amount of precipitation and the general weather conditions there during the summer time, to determine the availability for these animals of field food, and grazing. In the winter season we keep the cattlemen informed as to the severe weather conditions so that they can herd up their stock and give them protection from the severities of the weather. It is a very important service.

The CHAIRMAN. Can you state an instance where you have been of particular service to the cattle people out there?

Mr. MARVIN. This is for an extension of that work in Montana. We have this work in Oklahoma, Texas, the Pan-Handle region, and Colorado, and the stockmen think a great deal of it.

The CHAIRMAN. Is it possible to forecast as to the storms with any degree of accuracy in a particular locality?

Mr. MARVIN. We do that, Mr. Haugen, so successfully that the people are clamoring for this service. We do not claim to be infallible. There is not any doubt in my mind about the value of the service. It is certainly beneficial, and the economical value of it to the cattle raising industry is unquestionably large. They save thousands and thousands of dollars. One forecast of cold weather, for instance, in the northwest has saved thousands of lambs. We received testimony of that from the people in the field.

The CHAIRMAN. For instance, when you forecast the weather conditions in the northwest, does that mean a particular locality or one quarter of the continent?

Mr. MARVIN. In the case of cattlemen say, whenever they receive a report of very cold weather or snow they send out their herdsmen and bring in their cattle and give them protection, those that are weak and feeble.

Mr. McLAUGHLIN of Michigan. In the State of Montana, where you are going to establish this work, how many observation stations will you have?

Mr. MARVIN. There might be half a dozen stations or more added to the work in the field. Those stations simply report weather and temperature conditions by telegraph, and receive a small fee for making observations and telegraphing the reports.

Mr. McLAUGHLIN of Michigan. They report actual conditions after they arise. Do they make forecasts and predictions of a change of weather?

Mr. MARVIN. Those reports show actual present conditions and come into our central office or district center. It is on those reports that we make the forecast of the conditions. These forecasts are sent out from the district center, in that case, probably Helena.

Mr. McLAUGHLIN of Michigan. Then the observations in Montana will be made at the different stations in Montana and reported where?

Mr. MARVIN. And reported to Helena. That is the center of that district. These reports will go into that station, be bulletined, and distributed.

Mr. McLAUGHLIN of Michigan. And then the forecasts and predictions will be made up at Helena?

Mr. MARVIN. Not exactly. The forecasts of severe and all other weather are made at the district forecast center, which is Chicago in this case, and sent back through Helena to the cattle interests.

Mr. McLAUGHLIN of Michigan. What means do you take to spread the news through Montana so that the cattlemen may know what your information of the coming weather is?

Mr. MARVIN. It goes first into the newspapers, and then it goes into bulletin cards that are distributed to the cattle raisers themselves, to owners, to bankers, and to the others who are interested in that industry. We send it to them, and they see that it goes to the

individual herdsmen who round up the cattle and give them protection.

Mr. McLAUGHLIN of Michigan. Those forecasts are published in the newspapers. Do you have to pay for those?

Mr. MARVIN. No, sir.

Mr. HARRISON. They are telephoned, too?

Mr. MARVIN. They are telephoned in many cases.

Mr. McLAUGHLIN of Michigan. They are disseminated in other ways by cards that you speak of?

Mr. MARVIN. By forecast cards and by bulletin. The printing I spoke of a moment ago includes those bulletins. I think perhaps I have a cattle-region bulletin here.

Mr. McLAUGHLIN of Michigan. I was trying to find out how your forecast reaches those that are interested in it.

Mr. MARVIN. Take for instance, at Oklahoma City, where the service is in operation, and at Amarillo. The cattle industries in those sections are organized to a considerable extent. We place our information at the centers of the industry. The information goes to the bankers, the cattlemen, and stock interests. They see that their constituency are advised in regard to these conditions. It goes to Amarillo, Tex., and other cities in Texas, and each cattle interest is on the mailing list to receive this information from our office at certain places. At certain other stations it is telegraphed directly to some particular individual who agrees to disseminate it. In some other cases, as Mr. Harrison calls my attention to, it is telephoned from the local office at Amarillo, Houston, Oklahoma City, or some of the other stations, to those parties who are on the list, and who we know are interested. You may be sure there is nothing left undone to disseminate this information.

Mr. McLAUGHLIN of Michigan. After you make the forecast what expense is involved to your bureau in this dissemination?

Mr. MARVIN. Merely the telegraphic expense; in some cases very little. There is very little expense involved in the dissemination after we once get the result and the information to disseminate. The expense to us is in collecting the information and working it up and making the deductions, the scientific deductions from the reports as to what the information should be. That is the large expense involved.

Mr. TINCER. I do not understand yet. You get this information. Kansas has this service, you say?

Mr. MARVIN. Yes, sir; perhaps.

Mr. TINCER. You have your observatories in Kansas, you have places where they get the information, and then they forward you the information, and you issue bulletins showing what the weather is or going to be.

Mr. MARVIN. Yes, sir.

Mr. McLAUGHLIN of Michigan. You get that information at your central office by wire?

Mr. MARVIN. In most cases the information comes in by wire. That is a part of the expense.

Mr. McLAUGHLIN of Michigan. Then it would not be worth much, unless it did, would it?

Mr. MARVIN. No, sir.

MR. TINCHER. You spoke of Amarillo. They have a chamber of commerce there. Of course, cattle being one of the principal industries, they notify the people of the weather forecasts. Do you know how they get their weather forecast that they depend upon, the chamber of commerce at Amarillo, how they get it there?

MR. MARVIN. They get it from the Weather Bureau, I think.

MR. TINCHER. No; I just want to suggest something to you. Do you know, as a matter of fact, that the railroads, for economic reasons, are very much interested in keeping the stations informed as to weather conditions? I do not know what project you have for notifying the chamber of commerce at Amarillo, but I know that they get the information they act upon through the Santa Fe Railroad stations. They depend upon them for their weather forecasts.

MR. MARVIN. The Santa Fe gets it from the Weather Bureau, and they are distributing agencies in that sense in their own interest.

MR. TINCHER. Yes; the railroads are doing that.

MR. MARVIN. They cooperate with us to the extent of passing along the good work, and that is true of almost every activity. The railroads are vitally interested in shippers' forecasts and cold-wave forecasts which affect the shipment of perishable products. The commission merchants are interested in them. As soon as the information is available at the Weather Bureau it is passed over to the railroad-operating officials, and they pass it down the line. The same is true of commission merchants.

MR. TINCHER. You say the railroads depend upon the Weather Bureau for their forecasts?

MR. MARVIN. I do not know of any source of forecast information that is authentic and based on bona fide data that does not originate with the Weather Bureau in the last analysis. The Weather Bureau is the only agency in the Government that is engaged in the practical conduct of meteorological work. No other agency is making authentic, reliable observations of temperature conditions, and we do not know of anybody who understands the art of forecasting as well as the Weather Bureau.

MR. TINCHER. I do not know. Suppose they receive a telegram stating that a storm is coming from Washington?

MR. MARVIN. That comes from the Weather Bureau, probably.

MR. TINCHER. I do not know but what it comes from the locality of the storm. Of, course, they have to have reliable information.

MR. MARVIN. The source of authentic forecasting is lodged in the Weather Bureau. There may be agencies which offer forecasts, but they are not what go over the country generally, as far as I understand.

MR. TINCHER. Does your department communicate at all, we will say for instance, with the chamber of commerce at Amarillo, Tex.?

MR. MARVIN. Yes. The official at Amarillo is in immediate contact with the chamber of commerce, and we supply many of these chambers of commerce with maps such as you have over her in the lobbies of the House and Senate. The chambers of commerce are most clamorous for information. It is difficult to satisfy their requests.

MR. JONES. You have this net increase about \$70,000, and you estimate it will be necessary to meet about six different propositions.

Have you in your own mind figured out how it is divided among these six different items, (a), (b), (c), (d), (e), and (f), so we will get some idea as to the way you are classifying it?

Mr. MARVIN. The amounts are not set out in detail.

Mr. JONES. About how much of this \$70,000 additional would you need under subdivision (a), for instance?

Mr. MARVIN. Under subdivision (a), about \$40,000.

Mr. JONES. And under subdivision (b)?

Mr. MARVIN. \$9,500.

Mr. JONES. And (c)?

Mr. MARVIN. \$9,000.

Mr. JONES. And (d)?

Mr. MARVIN. \$7,000.

Mr. JONES. And (e)?

Mr. MARVIN. \$4,000.

Mr. JONES. And (f)?

Mr. MARVIN. \$900.

Mr. JONES. That makes \$70,400, does it?

Mr. MARVIN. \$70,400.

Mr. JONES. In your tabulated statement—this is simply for information—you have again the same thing called up before as to what was expended in 1919, and your estimate for 1921 still has that lapse of 1920 between, but under the heading of observers and assistant observers you have for your estimate for 1921, 38, and you extended in 1919 to 312 persons, temporary and part time, of course. The question I ask is whether you expect to get the same amount of service with 38 permanent employees or observers and assistant observers as you did out of 312 in 1919?

Mr. MARVIN. We expect to get more.

Mr. JONES. Why.

Mr. MARVIN. I would like to give you, if you will permit me, Mr. Chairman, a statement in regard to these increases that will apply to that question there and to all of these items. This is the question of service. Service is impossible without men. The man power of the bureau is at the lowest possible ebb. During the war nearly 175 Weather Bureau men entered military service. Replacements were made mostly by young boys, in several cases by women and girls in a temporary status. The trained men remaining on duty carried the major burden of the work, and in addition they had to train and instruct the new men. A slight increase in the total number of employees occurred at this time, because it was absolutely necessary in some cases to add two or three inexperienced and untrained men to take the places of one or two who had gone on military furlough. Nearly all the men have now returned to duty. Some of them have not returned because they can get more money outside. The temporary men, including the excess, have been let out, and our service has been reduced to the prewar strength as regards the number of men.

I would like to ask you gentlemen to recognize how rigidly Congress limits my so-called lump sum for salaries. The language of the appropriation reads, "including not to exceed \$672,500 for salaries."

Mr. McLAUGHLIN of Michigan. Where is that?

Mr. MARVIN. It is on the bottom of page 29 in the heavy brackets, "including not to exceed \$726,800 for salaries." My appropriation for salaries this year is \$672,500. This is already in effect a statutory roll and has been ever since the appropriation of 1915, when this form of appropriation was adopted. At that time the item carried 465 men. The amount of the roll has been slightly increased in the meantime, and so has the number of men employed. We now carry about 483 men. That is the actual roll made upon December 1. The amount of the roll has been slightly increased in the past several years.

Mr. JONES. Is that your pay roll or statutory roll?

Mr. MARVIN. That is the men on this miscellaneous roll, not the statutory roll. We now carry 483 technical and scientific employees on that roll at an average basic pay of about \$1,375 per annum. During the past five years this average per annum pay has remained nearly stationary. At least 200 of the officials which go to make up the average per annum pay are in charge of the 200 stations of the bureau. These are representative men in their communities, and are of coordinate importance and responsibility to postmasters and city officials, and yet their average basic pay is \$1,375. I think you must see that this is a state of affairs that should not exist.

Moreover, this explanation is offered to refute the charge that extravagant increases in pay and in granting of promotions are possible in lump sum appropriations and are prevented in statutory rolls. No maladministration of salary appropriations is possible with the lump sum appropriation of the Weather Bureau. You have given me a form of appropriation there that absolutely forbids any excess.

The CHAIRMAN. In what respect does it differ from the appropriations made for other bureaus?

Mr. MARVIN. The maximum sum that can be expended for salaries is fixed, which automatically limits the maximum number of employees. It is a "not to exceed" amount.

Mr. JONES. When that sum was fixed, was it not fixed with a view to reaching the largest possible service, and was it intended that the maximum should be exercised even though the service was not necessary?

Mr. MARVIN. That was true at the beginning, but under the stress of the present times and the high costs of service, the slight unobligated surplus or working reserve normally essential for this kind of a fund has been absorbed.

The CHAIRMAN. Before you get away from lump sum appropriations, I understood you to say that it was not in the power of the bureau to advance salaries. Is it not customary to transfer an employee from one roll to another, and then back with an increased salary?

Mr. MARVIN. That is absolutely forbidden by law. We can not do that sort of thing.

The CHAIRMAN. I believe it was stated here last year that that was being done.

Mr. MARVIN. I can not recall any such statement. What I mean to say is that it is forbidden by law to transfer a man from the statutory roll to the lump-sum roll and increase his salary. If we

do so there must be an entire change of responsibilities and duties. You certainly can not ask me to take a man who is an assistant in charge of a station, and put him in charge of an important city station, make him move himself and his family to that station and not pay him any more salary. There is not any justice in that.

Mr. HUTCHINSON. You say you have 200 stations around in different parts of the country. Is there different pay for different stations?

Mr. MARVIN. The pay depends upon the responsibilities and the ability of the man.

Mr. HUTCHINSON. I was going to take up the Trenton, N. J., station. We have a splendid service there, and an efficient man. Can you tell me his salary? Do you recall it?

Mr. CALVERT. \$1,800, not including the bonus.

Mr. HUTCHINSON. Do you know how much help he has?

Mr. MARVIN. He has two men, I think, and a messenger.

Mr. HUTCHINSON. That is the best salary you can give that man for the service he does?

Mr. MARVIN. That is the best salary we can give. You see, for 483 men the average pay is \$1,375, and if I need an extra man I have to demote 10 men \$100 apiece to get a new man at \$1,000, simply because the little reserve in this salary fund to which you have limited me is now fully obligated.

Mr. HUTCHINSON. Where is his title in this?

Mr. MARVIN. He is a meteorologist, he appears as a meteorologist.

Mr. HUTCHINSON. You have some at \$2,880?

Mr. MARVIN. Yes.

Mr. HUTCHINSON. Why is the man at Trenton only worth \$1,620 when they get a good deal more?

Mr. MARVIN. The man at Trenton is one among 40 who receive \$1,800.

Mr. RUBEY. And they get a bonus in addition to that?

Mr. MARVIN. Yes; they get a bonus in addition to that.

Mr. RUBEY. That is \$2,040.

Mr. MARVIN. Yes; \$2,040 for the Trenton man.

Mr. JONES. Are those salaries fixed according to the station, or according to the length of service?

Mr. MARVIN. By the length of service and experience of the man, his ability, and the responsibility of the station duty. There are 75 stations that are practically on a par with Trenton, N. J., in service. There are 40 men, I should say, that are practically on a par with the official in charge of the Trenton station, and those men receive \$1,800 apiece.

Mr. HUTCHINSON. Do you do that by civil service, or what?

Mr. MARVIN. They are all civil-service employees. I explained a while ago that the status of the men in their different salary grades is fixed by this efficiency classification. There is no service of the Government, I do not care what branch it is, where greater care and justice is done than in the Weather Bureau and the Department of Agriculture in determining the amount of pay and opportunities for promotion of the men. The man at Trenton is in a place where there are many others like it.

Mr. HUTCHINSON. Where is this man located that gets \$2,520? What office is that?

Mr. MARVIN. The official in charge of Philadelphia gets \$2,520, as I recall, and the man in charge of the New York station gets \$2,520.

Mr. HUTCHINSON. Then you do consider the size of the city, do you not?

Mr. MARVIN. To a certain extent. I stated a while ago that the size of the city to a certain extent determines the responsibilities of the men.

The Philadelphia station is what we call a section center, and he takes care of all the observations in the State, and he has a number of other interests to look after than the station at Trenton, N. J., which is also a section center for a smaller State.

Mr. HUTCHINSON. I do not see how you can keep them. We give more money to men who shovel fertilizer than you do to those men holding those positions. They have got responsible positions. I notice that in 1919 you had 921 men, and this year you ask for 658, and still ask for \$56,873.18, the same as you expended in 1919. Where does that go?

Mr. MARVIN. The comparison, as I said a while ago, in connection with the central office work, that covers a large number. It covers a turnover among 900 individuals employed.

The **CHAIRMAN.** Would it not be well to state the temporary employees in 1919 and the number now to be employed permanently, so that we may get this correct?

Mr. MARVIN. You wish a comparison of the number of permanent places we carried in 1919 with the number we expect to carry in 1921. This estimate for 1921 is the best estimate we can make for the permanent number of employees.

The **CHAIRMAN.** We want the reason for the increased appropriation for less men than you previously had.

Mr. MARVIN. You can not make that comparison, for the reason that this condition in 1919—

The **CHAIRMAN.** It is for us to explain this matter to the members of the House when the bill comes up on the floor. We should have it clearly indicated in the record. By stating the number of temporary employees that you intend to make permanent, I take it, will explain it fully. We should have the exact number.

Mr. CALVERT. I think I can make that point plain to you, Mr. Haugen. As has been indicated before, it is rather difficult to draw any clear comparison from these tables in the form we are required to submit them. Even the men who make them up have difficulty in doing so. But the 921 figure there means the number of individuals that were employed on that roll during the fiscal year 1919. It does not mean that at any one time 921 men were on the rolls. As a matter of fact, the average number on the roll at any one time comes nearer to being 500 than 921.

The **CHAIRMAN.** If you stated that in 1919 you employed 921 men, and stated the number temporarily employed, and that now for 1921 you propose to employ 658 on the permanent roll, that would account for the increased appropriation.

Mr. CALVERT. Yes, sir; that is a very fair statement.

The CHAIRMAN. You had better state the number here in concise form so we will not have to run through the hearings to get the facts in order to explain it to the membership of the House when the bill comes up for consideration.

Mr. RUBEY. I have figured it up from this table, counting those who were employed temporarily and those who were employed part time, and out of this 921, 240 were employed either temporarily or part time.

The CHAIRMAN. How many are to be employed permanently in 1921?

Mr. MARVIN. I think we can straighten that out in a statement we will submit.

The CHAIRMAN. I believe you should prepare such a statement, so that we may have it.

Mr. JONES. Why was the decided increase from 1919 to what you estimate for 1921, and for what you had in 1920, for meteorologists at \$1,620? In 1919 you had seven employed, with five temporarily employed. You apparently had in 1920 73 permanently employed, and now you ask for 75. Why was the jump from 7 to 73 from 1919 to 1920?

Mr. MARVIN. That is the number we expect to carry in 1921.

Mr. JONES. I say why was the jump from 7 to 73?

Mr. MARVIN. It was provided in the estimates to take care of the men we had on the 1919 rolls at that time. Those men were increased, the number in that particular grade. There were some reductions in other lower grades.

Mr. JONES. Then from 1919 to 1920 you jump on meteorologists from 7 to 73.

Mr. MARVIN. 73; yes, sir.

Mr. HUTCHINSON. I would like to ask you another question. I notice here you have got \$726,800 for salaries. Do I understand you can not apportion that to a certain number of men, for instance, 500 men or 600 men, or fix the salary according to your own judgment?

Mr. MARVIN. We can; yes, sir; that can be done, but we must be fair and just to all the men in doing so.

Mr. HUTCHINSON. Do you not think you can go to work and give a little more salary to fewer men and get more service?

Mr. MARVIN. You ask about less men. I have just explained here that the maximum amount of money I have to expend is \$672,000. I can not dispense with a single man. In fact, stations are begging for more help.

Mr. HUTCHINSON. Why can you not?

Mr. MARVIN. The man power of the stations is at the lowest possible ebb. We must have more men to extend this service. We are taxed to the utmost to do what we are doing now. We have not had any material increase in this appropriation since 1917.

The CHAIRMAN. Then, Professor, are you contending for an increased appropriation over the estimates? You say you can not get along with less men.

Mr. MARVIN. I am trying to explain that we would use this money for more men; we would increase the number of men we have.

The CHAIRMAN. Do you propose to employ more than 658 men?

Mr. MARVIN. No, sir; that number is greater than at present, but the number we estimate for 1921.

The CHAIRMAN. The 658 are enough to take care of the service?

Mr. MARVIN. That is the idea. They are all to be made permanent with the exception of short period or emergency employments that will be required from time to time.

Mr. JONES. Nine altogether?

The CHAIRMAN. Why so many temporary employees in 1919 and so few this year?

Mr. MARVIN. That is simply because every man whom we could employ that had not a civil-service status was called a temporary man. He was taken on temporarily because the Civil Service Commission could not furnish eligibles. We can not get them now. The turnover during the war, due to military furloughs, resignations, etc., was very large. I have got some so-called temporaries now.

Mr. HUTCHINSON. Do you have to take the civil service men?

Mr. MARVIN. Yes; these are all civil service men, if they are permanent men.

Mr. HUTCHINSON. Will you prepare a table indicating the number of temporary men in each instance and the number that have been made permanent?

Mr. MARVIN. Mr. Calvert reminds me that there were nearly 175 men who went into the military service. Those places during the war time were temporarily filled by this large number of men you see there.

Mr. HUTCHINSON. I call your attention to this one item here of observers, assistant observers, vessel reporter, apprentices, and messenger boys, \$960 to \$480. In 1919 you had 187 temporary and 8 part time. Now you suggest only 4 part time. That is a reduction of 191.

Mr. MARVIN. Mr. Chairman, I am sorry, indeed, that there is this confusion from trying to make up from this particular table which we were required to submit to comply with the law and which does not show the real facts of the case. The total number of men in the 1919 appropriation is the number that were actually paid for out of that fund at that time, the number of individuals. They were not all on the rolls at the same time.

Mr. JONES. They may have had nine men working for a period of one month.

Mr. MARVIN. We had many cases where several men held the same position in a short time.

Mr. JONES. I think the suggestion of the chairman is a good one, that you should show how many men were employed on the permanent roll and how many were employed for a temporary period.

Mr. MARVIN. We can do that and will be glad to make the whole matter clear.

General expenses Weather Bureau.
IN WASHINGTON EXPENSES (ITEM 53).

Title.	Rate.	1919	July 1 to Dec. 1, 1919 (fiscal year 1920).	Estimated, 1921.
		Number.	Number.	Number.
Meteorologist.....	\$3,960.00	13	3	3
Do.....	3,500.00	1	1	1
Professor of meteorology.....	3,500.00	1	1	1
Meteorologist.....	3,250.00	1	1	1
Professor of meteorology.....	2,880.00	1	1	1
Do.....	2,520.00	1	1	1
Climatologist and chief of division.....	2,520.00	1	1	1
Meteorologist.....	2,160.00	1	1	1
Do.....	1,800.00	13	3	5
Do.....	1,620.00	5	5	6
Observer.....	1,440.00	1	1	1
Do.....	1,260.00	1	1	1
Assistant observer.....	1,080.00	1	1	1
Clerk.....	1,200.00	.....	1	.....
Supervising instrument maker.....	810.00	.....	1	1
Lithographer.....	1,500.00	1	.....	.....
Total.....		22	23	25
Salaries permanent employees.....		\$46,232.17	\$50,300.00	\$56,700.00
Other expenditures.....		49,524.73	58,950.00	59,490.00
Turned back to Treasury.....		6,746.65	.....	.....
Total of appropriation.....		102,503.45	109,250.00	116,190.00

STATION SALARIES, OUT OF WASHINGTON—(ITEM 55).⁴

		Number.	Number.	Number.
Volcanologist.....	\$3,960.00	1	1	1
Meteorologist.....	3,960.00	1	1	1
Do.....	3,240.00	8	8	3
Do.....	2,880.00	1	1	1
Do.....	2,520.00	8	9	9
Do.....	2,280.00	14	14	15
Do.....	2,160.00	17	17	18
Do.....	1,800.00	30	31	35
Do.....	1,620.00	59	63	68
Local forecaster.....	1,440.00	1	1	1
Meteorologist.....	1,440.00	7	7	7
Observer.....	1,440.00	78	81	87
Do.....	1,260.00	39	113	119
Meteorologist.....	1,080.00	2	2	2
Observer.....	1,080.00	5	5	5
Assistant observer.....	1,080.00	58	51	101
Local forecaster.....	1,000.00	2	2	2
Assistant observer.....	1,000.00	2	1	1
Do.....	900.00	82	41	.....
Do.....	840.00	.....	1	1
Do.....	720.00	.....	1	1
Do.....	600.00	1	1	1
Observer.....	600.00	1	1	1
Assistant observer.....	540.00	.....	1	1
Do.....	500.00	1	1	1
Do.....	450.00	1	1	.....
Clerk.....	1,000.00	1	.....	.....
Printer.....	1,440.00	.....	1	1
Repairman.....	1,200.00	.....	1	.....
Do.....	960.00	1	.....	.....
Vessel reporter.....	960.00	1	1	1
Mechanic.....	1,000.00	.....	1	1
Apprentice.....	720.00	.....	1	5
Do.....	600.00	7	10	15
Do.....	480.00	24	21	15

¹ 1 part time, military furlough.

² Part time.

³ Estimated.

⁴ Tabulation shows the permanent commissioned force of the Weather Bureau. The amount expended on emergency assistances never paid to permanent commissioned employees, but is used for the emergency employment of messenger boys, printers, assistant observers, etc., for periods of a few days and very seldom in excess of 30 days.

General expenses Weather Bureau—Continued.

STATION SALARIES, OUT OF WASHINGTON—(ITEM 55)—Continued.

Title.	Rate.	1919	July 1 to Dec. 1, 1919 (fiscal year 1920).	Estimated, 1921
		Number.	Number.	Number.
Laborer.....	\$600.00	2		
Do.....	480.00		1	1
Total.....		501	488	521
Salaries permanent employees.....		\$665,586.49	\$667,500.00	\$721,800.00
Emergency assistance.....		4,330.33	15,000.00	15,000.00
Turned back to Treasury.....		2,873.18		
Total of appropriation.....		672,500.00	672,500.00	726,800.00

AEROLOGICAL STATIONS, IN AND OUT OF WASHINGTON (ITEM 57).¹

		Number.	Number.	Number.
Meteorologist.....	\$3,600.00			1
Do.....	3,240.00			1
Do.....	2,880.00			1
Do.....	2,280.00			1
Do.....	2,160.00	1	1	1
Do.....	1,800.00			13
Do.....	1,620.00	2	3	11
Observer.....	1,440.00	4	5	17
Do.....	1,260.00	8	14	36
Assistant observer.....	1,080.00	5	9	5
Do.....	900.00	7	5	
Do.....	840.00	1		
Clerk.....	1,200.00		2	
Do.....	1,000.00	3		
Supervising instrument maker.....	810.00		*1	*1
Laborer.....	720.00	10		5
Total.....		41	40	93
Salaries permanent employees.....		\$43,662.35	\$49,290.00	\$134,660.00
Emergency assistance.....		1,288.83	11,300.00	13,600.00
Other expenditures.....		40,490.42	134,460.00	142,760.00
Total of appropriation.....		85,441.60	85,040.00	281,020.00

¹ Estimated.

² Tabulation shows the permanent commissioned force of the Weather Bureau under the items mentioned. The amount expended for emergency assistance is never paid to permanent commissioned employees, but is used for the emergency employment of messenger boys, printers, assistant observers, etc., for periods of a few days and very seldom in excess of 30 days.

* Part time.

Mr. MARVIN. In regard to this restoration of service that I have been speaking about, Mr. Chairman, and the necessity for more men, I would like to have you make inquiries as to the necessity for this work. Ask men, for instance, like the Lake Carriers' Association at Duluth, Detroit, and Buffalo.

The CHAIRMAN. In that connection let me ask you just a few questions about these forecasts. In forecasting a storm do you advise the particular locality which will be visited by that storm?

Mr. MARVIN. Yes, indeed.

The CHAIRMAN. How closely? Is it not a fact that at times you forecast storms in certain sections of the country, which are diverted and appear a distance of 100 or 200 miles away from the locality warned?

Mr. MARVIN. Sometimes that may be true to a certain extent.

The CHAIRMAN. Is it not quite general?

Mr. MARVIN. No, sir; but we do not claim to be infallible, Mr. Haugen. We make a verification average, according to the most fair examination that we can make of the data, of something like from 88 to 90 per cent.

The CHAIRMAN. What does the 88 per cent mean?

Mr. MARVIN. It means that when we forecast a cold wave or a storm in a particular locality that storm will be found there at the time indicated in the forecast 9 times in 10.

The CHAIRMAN. By locality do you mean a county, a State, or several States?

Mr. MARVIN. In the case of storms it may be a State, or in other cases it may be a dozen States. A cold wave that we forecast, for instance, will sweep over a dozen States or 20 States before it disappears. Each forecast for a particular locality or State will be verified about 88 per cent of the times.

The CHAIRMAN. If you should forecast a storm for St. Louis, and that storm should be diverted to Galveston, would that be included in the 88 per cent?

Mr. MARVIN. No, sir; that would be an absolute failure. We would not pretend to count such a thing.

The CHAIRMAN. If it was diverted only 100 miles, would not that be included in the 88 per cent?

Mr. MARVIN. If it came within 100 miles, and if it was a general storm, it would; yes, sir.

The CHAIRMAN. Fifty miles?

Mr. MARVIN. It would be given a proportionate value in the verifications. We take into account the percentage of the States that is covered by the precipitation, if it is a precipitation forecast.

The CHAIRMAN. Of what value is the forecast of the storm to St. Louis if the storm appears within 100 miles from St. Louis?

Mr. MARVIN. It might not be of much value if St. Louis were not affected by the storm; but if forecasts are verified 88 per cent of the time the benefits that come in this 88 per cent more than offset the failures in the remaining 12 per cent.

The CHAIRMAN. Is it not true that frequently you have forecasted a storm for a certain day that has turned out to be clear, while other days you have forecasted clear weather that have turned out to be stormy? What is true as to Washington is true as to my section of the country and I believe true as to every section of the country. I would like to ascertain the accuracy of these forecasts and what value they are. What are we getting for the money expended?

Mr. MARVIN. There is an enormous economic value to the Nation from our service. While the value is enormous, we do not know the amount of saving that our bureau effects in dollars.

The CHAIRMAN. That is rather indefinite.

Mr. MARVIN. The benefit is not so much, Mr. Haugen, in the forecast of a little rain that may not come to-day or to-morrow, but the benefit is in the forecast of great storms on the Lakes, the seacoast, and the Gulf of Mexico; the great cold waves that come from the northwest and affect tremendous areas of the country, freezing orchards and fruits. It is the service to these specific interests that is most beneficial.

It is of the greatest economic value to the people. I can not convince you from my own statements that these services we are rendering are valuable. You asked me, as I understood you, about the verification and what good this has been to the people. I was trying to speak to that point.

Now, as for the need of the service, people who need it are asking us for this extension which we have requested.

In the middle of September, about, we sighted a hurricane down in the islands of the West Indies. That hurricane appeared there as the most innocent looking thing. The observations that we had upon which to base our deductions were very meager; but we were immediately on the alert, every man in the Bureau and on the Gulf coast was on the alert at the time of the appearance of this storm, because hurricanes, as you know, are fearfully destructive storms. Well, every 12 hours or oftener we had additional reports; we called for special observations between the regular ordinary observations of 8 a. m. and 8 p. m. That hurricane was headed toward our southern coast. It would move through the Florida Straits, according to our calculations. It struck Key West with destructive force. We sent warnings well in advance. We have testimonials from the people of that city of the splendid work of warning that was given of the approach of that storm. We could not prevent the storm, but the people there took protective measures to avoid the effects of the hurricane, which they could not have done without our warnings. Shipping left the track of the hurricane or stayed in port. As the hurricane went west of Key West warnings were sent to all the stations along the west coast of the Gulf and all intermediate points. For five days that hurricane was moving westward.

The fact of the matter is, Mr. Chairman, that our warnings were so effective that from the time that hurricane left Key West we got no reports from it. There were no vessels out in the Gulf to report to us by wireless where the storm was located. We got no reports. Why? The vessels had been told to remain in port, and they did remain in port. They heeded our warnings, which indicated to them the region of the Gulf in which the storm was located. The consequence was that we had only the observations that could come from the coast stations 100 or 200 miles from the storm center. It was very difficult for our forecasters to determine exactly where the center of the storm was.

We knew that it was somewhere south of New Orleans, somewhere south of the Louisiana coast. The study of the sea and the pressure observations on the coast indicated that that storm was near Louisiana, we could not tell just where. At one time, the conditions led us to believe that that storm was moving closer to the Louisiana coast. We made an announcement accordingly, and we warned all the people to the west of that storm.

Warnings were flying at that time on all the west Gulf coast. The observations that came in in the afternoon and that night showed that the storm instead of moving toward the Louisiana coast as we had surmised, and as we were justified in surmising, from the information we had, was really continuing its westward course toward the south coast of Texas, and by Sunday afternoon the storm had reached Corpus Christi. You know something probably of the damage it did there.

The storm was several days in crossing the Gulf, and finally went inland south of Corpus Christi. I could not say how many millions of dollars' worth of shipping were saved by the warnings we sent out. Every man in the Weather Bureau in the South was on the job. Many of them were in their offices all day and all night. Those men are faithful men; they are worthy of the highest consideration for their ability and fidelity.

The CHAIRMAN. I am interested in knowing with what accuracy these forecasts are made.

Mr. MARVIN. Those forecasts save millions and millions of dollars. It may be there was some dissatisfaction. We can not quite satisfy everybody. We are not professing infallibility, but we certainly feel confident that we are rendering a mighty service to the Nation. I doubt not but that if those interests that we are serving were asked, they would testify at once to the great value of the service, notwithstanding the fact that we make occasional failures.

Mr. JONES. You can not figure in dollars and cents the service rendered, because you do not know what transportation has been saved on vessels in obedience to your warnings.

Mr. MARVIN. Shipping generally heeds the warnings of the Weather Bureau.

Mr. JONES. And the testimonials which we have from the shipping facilities and from the Great Lakes shippers, and those people who are directly interested, what do they say about it?

Mr. MARVIN. I am prevented, gentlemen, from asking any of these people to say anything to you. If I were to ask the Lake Carriers' Association, or the chambers of commerce in the cities where we install these weather maps, or any of these people in the West that are interested in forest-fire protection, if I were to ask them to say anything to you about our work, I am afraid you would consider that I was influencing legislation. There was a law passed at the last session of Congress that would put me in jail if I did any such thing as that. But I do wish you would do it yourselves.

I can not bring in the testimony of these people as to the value of this service, but I certainly would like to have you ask the people whom we are serving in these ways as to the value of this service. Ask some of the cattlemen in Oklahoma City and in Texas as to whether our cattle-region service is of any value to them.

The CHAIRMAN. I have talked with a number of cattlemen and have looked into this matter considerably. I did not bring up the subject to criticize the work done by the bureau, because I know of the efficiency in the bureau, but the question is are these appropriations justified? Is the service of sufficient value to the cattlemen? That is the reason for my raising the question with what degree of accuracy you forecast these storms?

Mr. MARVIN. My answer is 88 per cent. For instance, in this forest-fire warning service that we are asking for we will undertake to tell the people, and especially the forest rangers, that the dry conditions and the prospect of winds are very favorable for the inception and spread of forest fires or of the coming of rains that will check forest fires. Now, the percentage of verification there is high enough to make that a very profitable piece of information to these interests. They want that information. They want us to give it to them, and we are trying to get the means to do so.

The CHAIRMAN. The committee will now recess. We will hear Mr. Marvin further this afternoon.

(Thereupon, at 1.15 o'clock p. m., a recess was taken until 2.30 o'clock p. m.)

AFTER RECESS.

The committee reassembled at 2.30 o'clock p. m., pursuant to recess.

WEATHER BUREAU—(Continued.)

STATEMENT OF MR. CHARLES F. MARVIN, CHIEF OF THE
WEATHER BUREAU—Continued.

The CHAIRMAN. The committee will come to order. Are you ready to proceed, Mr. Marvin?

Mr. MARVIN. Mr. Chairman, when we took a recess I think we were practically through with item No. 55.

Mr. McLAUGHLIN of Michigan. Before you leave that, Mr. Marvin, I would like to call your attention to that item, or that subdivision, in which you ask an increase for some work that you are going to take over, that the Bureau of Plant Industry has been doing in the arid regions. You ask for an increase in one of the other items to take care of it.

Mr. MARVIN. Mr. McLaughlin, that work that the Bureau of Plant Industry formerly performed, and which we are taking over, we will estimate will cost us \$2,540. I have explained that in the fund for expenses in Washington we want \$1,440 for the central office participation in and supervision of that work. Here is \$900 additional for the work in the field. Finally, there is an increase of \$200 for traveling expenses in item 56. That makes up the \$2,540, which we consider necessary for the conduct of that work. Now, this \$900 in the field is for the purchase or renewal of instruments for the maintenance of that work in the field.

Mr. McLAUGHLIN of Michigan. I supposed the reports would reach your department the same as they used to reach the Bureau of Plant Industry. In fact, I think you said that those returns would be made to the Bureau of Plant Industry just the same; that they would be made to you also, and that you would tabulate them. They don't have to be sent twice, do they? The expense of sending them don't have to be added here, does it?

Mr. MARVIN. The Weather Bureau, under the proposed arrangement, must prepare and supply the forms and the record sheets on which those reports are made and replace instruments that are worn out and have become no longer useful.

Mr. McLAUGHLIN of Michigan. In the first item there is maintenance expense. We have provided for that.

Mr. MARVIN. Which item do you mean?

Mr. McLAUGHLIN of Michigan. The first item we spoke of this morning, where you ask \$1,440. There is maintenance expense in that and there is maintenance expense here.

Mr. MARVIN. That is true, the (a) item for the restoration of suspended work. Extension and growth of the work is really a very different class of work from this of these plant industry stations.

Mr. McLAUGHLIN of Michigan. I am speaking about the subdivision f under 55 and carrying with it the note under 53.

Mr. MARVIN. I will refer to my note on 53.

Mr. McLAUGHLIN of Michigan. In regard to this work that you are going to take over from the Bureau of Plant Industry, or the work you are going to do in connection with the Bureau of Plant Industry, how many items of increase of expenses do you have in connection with that?

Mr. MARVIN. The whole work requires \$2,540. We have work in Washington and work out of Washington; also a small item of \$200 for travel. We have divided the amounts of this \$2,540 into \$1,440 in Washington, \$900 out of Washington, and \$200 for field travel.

Mr. McLAUGHLIN of Michigan. Why do you need any work outside of Washington? I gather from what you said before that the work in the field is to be done just as it was before, but that the data was to be sent to your office for tabulation.

Mr. MARVIN. That is true, as far as the work of the observer is concerned, but you must recognize there are expenses for paper, forms, records, and all that, together with instrumental equipment at the stations.

Mr. McLAUGHLIN of Michigan. The instrumental equipment is there, and they are using the same men that you are going to use under the new arrangement?

Mr. MARVIN. The instruments will not last forever. There is a certain depreciation which must be maintained.

Mr. McLAUGHLIN of Michigan. You mean that you are going to take over the supply and maintenance of those stations, where heretofore they were supplied and maintained by the Bureau of Plant Industry?

Mr. MARVIN. Exactly. We take over everything; yes, sir. We take over the supply and maintenance of those stations. Hereafter the Bureau of Plant Industry will have nothing whatever to do with them, but their men will make the observations and fill in the forms and send us the reports.

Mr. McLAUGHLIN of Michigan. I didn't get that idea from what you said this morning. I thought everything in the field was to be done just exactly as it has been done, and that the data was to be sent to your hands, to be looked over by your people and tabulated and published.

Mr. MARVIN. If that is the impression you got from my previous remarks, Mr. McLaughlin, I would like to correct that by saying that this does contemplate the future maintenance cost in the way of new equipment and to the supply of forms and records on which the observations will be entered and all new equipment as required, all of which will be paid for from our funds hereafter.

Mr. McLAUGHLIN of Michigan. Has the amount that has heretofore been allowed provided for that kind of work under the Bureau of Plant Industry been reduced so as to take into account the amount that has been spent by you for that work?

Mr. MARVIN. I think Mr. Harrison said this morning that there was no reduction for this, and I believe he also said that Dr. Taylor might make a statement in regard to that transfer when he comes before you.

Mr. McLAUGHLIN of Michigan. The amount of money involved is small, but it looks to me like a duplication, and you know some of

these small matters attract more attention on the floor and cause the chairman more trouble than large amounts.

Mr. MARVIN. That is quite possible. I can assure you that there is no attempt to duplicate or to do any unnecessary work in this connection. The amount is small, as you say, because the work that we expect to do is relatively small, but we think that amount is necessary. We can not do that additional work without some cost to us. Now, elsewhere in the hearings I have tried to impress upon the members of the committee that we are at the last limit as to what more work we can do with the men we have. We are just up to the breaking point now.

The disposition of the bureau is to render every service possible to anybody that wants the service whenever we can give it to them, and we have taken on work here and there, a little bit at a time, which it would be ridiculous to come to you for an appropriation for, but we can not do that any more. We have come to the place where we can't take on any more work, no matter how trifling or insignificant it seems. We have got to have a little working balance of money to do any new work with, and my whole increases here are simply to rehabilitate this service in the field and put us in a position to meet the demands as they present themselves to us to-day. During the war we have conscientiously refrained from presenting increases in our estimates here, because the money was needed for other purposes. We have refrained from asking for any increases, and our appropriations have remained nearly stationary. I can not refrain from asking further increases now, because I think the country is entitled to the service, and I think it is proper and just. I am trying to give you exactly the needs as they come to us.

Mr. McLAUGHLIN of Michigan. The chairman of the committee directs most of these matters. We are only humble members of the committee, but I have in mind that it is the duty of this committee to cut these things to the bone, in view of the fact that with all the revenues that are available we are going to have a deficit of over \$3,000,000,000 next year.

Mr. MARVIN. Yes; I know. My duty as an administrative officer, I think, is to cut the thing to the bone, and I believe we have cut them down to the utmost. Now, we have come to the position where we have got to cut off more service. Our men are unable to do more service in the field with the number of men we have. You can readily see that there is certainly a limit to the amount you can do with a given amount of money and a given number of men. The purchasing power of money has not increased; it will not pay for as much work and service now as it did a few years ago.

Mr. McLAUGHLIN of Michigan. There is no doubt about that. Increases of salaries must be provided for; men must have more money. I don't know of anybody who wishes to see men work for less than they are worth.

Mr. MARVIN. These are not for increases; these are for additional men; of course if we fill these new places with men now in the service they will be given the salaries intended for the new places and appropriate to the duties and responsibilities required.

Mr. McLAUGHLIN of Michigan. When it comes to additional men, to extensions of service, there may be a question whether this is the time to extend the work.

Mr. MARVIN. Of course, I will have to leave that to the judgment of the gentlemen of the committee.

Mr. ANDERSON. Perhaps you have referred to it already, Mr. Marvin, but I notice in the note here on page 30 you have a reference to the inauguration of a daily corn and wheat service. What does that contemplate?

Mr. MARVIN. Just what item is that?

Mr. ANDERSON. On page 30, near the bottom of the note under "e," you have this statement:

For the extension of the cattle region weather service to Montana, where the live stock in 1918 was valued at approximately \$1,500,000, and to inaugurate a daily corn and wheat service in sections of the country where large quantities of these cereals are grown, but which the bureau has been unable to cover because of lack of funds.

Mr. MARVIN. That is in conjunction with the cattle region work that we were speaking of this morning, and that has reference to the reporting of weather conditions, both for the cattle region work and for the corn and wheat regions, where those products were not previously grown to any considerable extent.

Mr. ANDERSON. What does that service contemplate which is not contemplated by the ordinary weather service bulletins?

Mr. MARVIN. The service consists in securing reports from outlying stations by telegraph, and concerning weather conditions that show the effect of the weather on the growth of these important crops. These reports are tabulated in little bulletins like this. [Indicating.] I haven't a corn and wheat report with me now, but it is very like one of these, it gives the weather conditions in the regions in which these crops are grown—corn and wheat. We already have that service in operation covering all the great grain-growing States, except that now we have to extend it somewhat to cover those regions in which extensions of agriculture of that kind have occurred in the past few years. I said a moment ago that we can not expand any more with the funds that we now have.

Mr. ANDERSON. I take it from your statement then that this is not forecasting service at all?

Mr. MARVIN. No, sir; it is not exactly forecasting service; it is a statement of the conditions in those growing districts, in those agricultural districts.

Mr. PURNELL. How are those reports distributed?

Mr. MARVIN. These reports are distributed very much as I explained this morning, from the outlying stations to the chambers of commerce, the grain exchanges and to individuals that are interested in those products and commerce therein.

Mr. ANDERSON. Do they get them on application?

Mr. MARVIN. There are certain people that apply to receive those reports every day, and they are on the mailing list. They are also posted in the exchange. The distribution is made to those regions that can be reached immediately during the day, say. There is no telegraphic dissemination of the information in those bulletins, but it is a telegraphic service for collecting the information.

Mr. ANDERSON. Are these bulletins used at all by the Bureau of Crop Estimates in determining the conditions of the crop at a given time?

Mr. MARVIN. The Bureau of Crop Estimates makes considerable use of the information in regard to weather conditions that we issue in this way, but I can not say that it is a determining factor in their estimates of production.

Mr. ANDERSON. Then, the principal value of these reports is to the speculator on the stock market?

Mr. MARVIN. I have no doubt that the speculator is benefited, but that is true of all the crop information that is issued, whatever the source. This can not be avoided. All persons interested in crops, including growers, millers, bona fide dealers (and these constitute the larger number) find the information invaluable and demand it. It is a statement showing the atmospheric weather conditions over the country from week to week. It is the authentic statement of the conditions as affecting agricultural products. It standardizes and stabilizes the information. It furnishes it from an authentic source, and if that were eliminated from the Government work, I don't know how the interests affected would get along without it.

Mr. PURNELL. What would that elimination mean?

Mr. MARVIN. That is a hypothetical question, but I think it would mean fictitious reports sooner or later.

Mr. HUTCHINSON. Professor, do I understand that this is a department of the Weather Bureau that is reporting the conditions of wheat and corn?

Mr. MARVIN. Not the conditions of the crop; no, sir; simply the weather conditions in the wheat and corn and grain-growing States; crops, rice, sugar cane. They take the conditions of the weather on a given day and summarize it week by week in these grain-growing and agricultural States. It is a service that has been in operation for many, many years, and is comprehended in the organic act of the bureau. We would not administer the bureau without doing that, under the terms of the organic act.

Mr. HUTCHINSON. We have some department now in the Department of Agriculture that does get these estimates and reports conditions of the grain.

Mr. MARVIN. That is the quantity of production; this is the weather conditions over the agricultural districts as it affects the growing crops.

Mr. HUTCHINSON. Do they use that? Do they use your information?

Mr. MARVIN. They make use of it afterwards to a certain extent in arriving at an estimate of production, but we give this information on the day of the observation or at the end of a week, as the case may be.

Mr. HUTCHINSON. Supposing it does not rain; it is real dry about all the time; do you report dry weather?

Mr. MARVIN. We report all weather conditions, but not the crop estimates. They may refer to our reports of dry weather, but we make the report of the weather conditions, and the Bureau of Crop Estimates utilizes that information. They consult our chart of weather conditions when they make up their quantitative estimates of

production. But I would like to emphasize the difference in the two kinds of work; we are dealing with the weather and its influence on crops, and they are dealing with the crop production.

Mr. HUTCHINSON. It looks to me to be a duplication. They have men all over the country—I don't know whether it is under the farm agents or what it is—that reports the condition of grain.

Mr. MARVIN. I think they do not report the weather.

Mr. HUTCHINSON. Does that have any effect on the crops? I mean your reports?

Mr. MARVIN. No, sir; the reports do not affect the crops, but we state what the weather conditions are in the crop-growing districts.

The CHAIRMAN. If you will quote from the report that will give the conditions of the crops.

Mr. MARVIN. The past week was generally favorable for crop growth and farm work, the last three days being particularly pleasant for field operations. The rains are becoming lighter and less general. Showers in excess of one-half inch were confined to the southwest quarter of the State, although there were a few showers north of the Missouri River from Clay to Carroll, thence north to Livingston County. They were heavy enough to locally interfere with work in the counties of Livingston, Clay, Pettis, and Dent. Wheat, rye, and oats harvest has become general; in the southern counties thrashing wheat has begun. Farmers are having some difficulty cutting the river bottoms because of soft ground, and a small amount will be lost. The wheat crop as a whole is rated as being good to excellent.

This is a portion of a report of Columbia, Mo., issued Tuesday, July 1, 1919.

The CHAIRMAN. To whom do you send out those printed reports?

Mr. MARVIN. This is disseminated from Columbia, Mo., to everybody that this report can reach within this 24-hour period.

The CHAIRMAN. Do you publish similar reports each day to send to all subscribers?

Mr. MARVIN. I don't know what the issue of this is. There are a few hundred copies sent from Columbia, Mo. Now there is a similar report of that kind from other States. Here is a report from Boise, Idaho. These are simply sample reports of the kind that are issued at stations, and they differ from each other.

Mr. PURNELL. I would like to know how a report of that kind could possibly benefit a corn raiser out in Indiana or Iowa, for instance.

Mr. MARVIN. That is only a sample of the reports that the bureau issues for the crop-growing districts. The fact of the matter is that this is only part of the service designed for the farmer. We give him also a weather forecast for the day in order that he may plan his farming operations. It is difficult to impress upon you the great variety of service that is given by the bureau in the different interests and in the different sections of the country. It is an extremely varied species of service, the distribution of the forecast, the distribution of these corn and wheat region reports, the distribution of the cotton region reports, of sugar cane, cattle region reports, and forecasts of frost, to orchardists, stages of rivers, minimum temperatures for shippers, etc. Each of these constitute a species of service in particular sections, according to what they are interested in. We

apply the atmospheric conditions for the benefit of the community in which we disseminate the information, and we make it useful to them in the conduct of their commercial and industrial operations.

The CHAIRMAN. What amount do you estimate for this service?

Mr. ANDERSON. There is an increase there for that service of \$4,000.

The CHAIRMAN. How many items are carried for equipments in the bill?

Mr. MARVIN. This one item—

The CHAIRMAN (interposing). Is this the only item carried in the bill for equipment for your bureau?

Why don't you put all of the equipments under one head for the whole bureau?

Mr. MARVIN. This form is the same as in every estimate we have submitted before.

The CHAIRMAN. It is now divided up into smaller units.

Mr. MARVIN. That is true. Now we have a few new items, and we set out these increases based on the purpose of the work rather than material required to do the work because it seemed to us easier for the committee and for Congress itself to see just what we wanted to do. For instance, later on we come to an item—

The CHAIRMAN (interposing). I know; but wouldn't it be better to have it under one item?

Mr. MARVIN. It would simplify our administration of the matter if the committee prefers to have us do that. We can consolidate this all into that one item.

The CHAIRMAN. Why not put all the equipment for the bureau under one item?

Mr. MARVIN. Just what should we include in equipment, for example, in order that I may understand just what your idea is? You understand that when a form of bill is once agreed upon we adhere very closely to that form. Now, this form has been running for several years.

The CHAIRMAN. But, after all, it makes more bookkeeping and overhead expense. Whenever you divide it into divisions and bureaus there is, of course, an overhead charge.

Mr. MARVIN. I don't think so. I think the consolidation of this into one large appropriation would make it more difficult to set forth the purposes of the expenditure. We have segregated these items at the present time in order that they may be considered independently of each other on their respective merits.

The CHAIRMAN. That is proper, applied to certain projects; but when it comes to equipment for the bureau I take it that all might better be under one head.

Mr. MARVIN. You refer now to equipment—instruments?

The CHAIRMAN. Yes.

Mr. MARVIN. And chairs and office furniture?

The CHAIRMAN. Yes; everything in the way of office equipment.

Mr. MARVIN. If the committee wants us to make the appropriation bill on that basis, we would be very glad to make it up in that way; but, as I said a moment ago, we have submitted the estimates here in one form, according to the previous practice, and if you wish us to change this form we will be glad to do so.

The CHAIRMAN. I think it is proper to segregate the projects; but, for instance, under the heading of "Equipment," a number of these things might just as well come under one head and thus simplify the bookkeeping and materially reduce the expense.

Mr. MARVIN. I don't understand how there could be any artifice of classification or allocation of expenditures which would lessen the cost of doing the work. We now have this appropriation about which I am speaking, of \$1,373,430.

The CHAIRMAN. What is the next item?

Mr. MARVIN. The next item is on page 56, "For official traveling expenses."

The CHAIRMAN. You are asking for \$28,200.

Mr. MARVIN. Yes, sir; \$28,200.

Mr. McLAUGHLIN of Michigan. This is extra expense for meteorological observations for the Bureau of Plant Industry?

Mr. MARVIN. There is \$200 added there for traveling expenses incident to that work.

The CHAIRMAN. That work is growing?

Mr. MARVIN. Yes, sir.

The CHAIRMAN. The next item is No. 57.

Mr. MARVIN. Item No. 57, "For the establishment and maintenance of additional aerological stations, for observing, measuring, and investigating atmospheric phenomena, and the issuing of weather forecasts, advices, and warnings in the aid of military, naval, and civil aeronautics, and in the development of navigation of the air."

That is for the meteorological work in aid of aviation. I don't think I need to enlarge on the development of aviation within the past two years. We have made certain changes in the language there simply to make the language more specific and include the work that heretofore has been done under the appropriation. The original appropriation for this particular purpose came during the war and was made on the Army appropriation bill. The next year the appropriation was transferred intact to the Agricultural bill. It was first made on the Army bill, because the Agricultural bill had already been passed by Congress and the Army bill was pending and the money was needed immediately in connection with the military operations. As I stated this morning, nearly 175 of our men went into military duty. Many of those men went into that part of the military duty that had reference to meteorology, and our work in military operations was confined almost exclusively to upper air meteorology. We now want to bring that work up to the growing demands of military operations and civil operations in the development of aeronautics. There is an estimated increase there of \$200,000.

Mr. McLAUGHLIN of Michigan. The second paragraph of the note on page 32 says:

Through cooperation with the Signal Corps, the Weather Bureau has inaugurated a limited forecast and warning service regarding upper air conditions at about 20 Army stations, together with five additional stations operated by the bureau.

Now, will you tell us what you do at one of those Army stations?

Mr. MARVIN. The Army stations are maintained by the Chief Signal Officer at the military post. At the present time those stations make observations with what we call "pilot balloons." Now, a pilot balloon consists of a little rubber balloon something like the

children have, only a little bit larger. It is filled with hydrogen and is tied up tight and released. One or two men with an instrument which we call a theodolite watch the flight of that balloon just as far as they can see it. It ascends through the air at a known rate. We know pretty accurately how rapidly it ascends. We observe its position with this theodolite once a minute. The position is written down and a graph is made showing the track of that balloon through the air, both in its horizontal wanderings with the air currents and also in the vertical ascent. We chart those observations and they tell us the direction of the motion of the wind in the levels that the balloon occupies successively, and when we get done we can tell you that at 1,000 feet the wind is moving 3 miles an hour or 10 miles an hour in a certain direction; that 5,000 feet up it is moving at a very different velocity and in a different direction.

Mr. McLAUGHLIN of Michigan. How many of those observations do you make in a day?

Mr. MARVIN. Generally two; sometimes more at each station. We make an observation in the forenoon and another observation in the afternoon.

Now, at the present time—when these estimates were written the number was a little less—we have 11 stations making those observations. The Signal Corps had 20 at that time, but they now have 12.

Mr. McLAUGHLIN of Michigan. Are those entirely reliable? Doesn't the direction and velocity of the wind and the different currents way up in the air change very rapidly sometimes?

Mr. MARVIN. Not so rapidly as they do at the surface, Mr. McLaughlin.

Mr. McLAUGHLIN of Michigan. Not so rapidly, but do they not change quite rapidly?

Mr. MARVIN. They do change but are more stable than they are at the surface. Now we have made observations of the surface winds twice a day, morning and evening, and that is our telegraphic report. We make these balloon observations twice a day. In the intensive military observations in France, they made observations six times a day with these balloons.

Mr. JONES. Why did they do it?

Mr. MARVIN. To take account of very local conditions, of local changes, possibly; and to make sure that they are on the right track.

Mr. JONES. Then they thought it was subject to change every hour or two, didn't they?

Mr. MARVIN. Yes, sir; they did. They wanted to make sure that there weren't any changes there. It is not necessary that the changes do occur, but if they did occur, they wanted to know it.

Mr. McLAUGHLIN of Michigan. Can you tell us how they governed their ascents and the operation of the balloons in line with your suggestions, or in line with your findings?

Mr. MARVIN. The aircraft going into the air learn the direction and velocity of the wind by these reports. The artillery wants to know what that direction and velocity is, even more minutely, because they want to know what kind of resistance is operating against their big projectiles; and these more frequent observations are more for artillery purposes than they are for aviation purposes. However, the aviation man wants all the information he can get.

Mr. McLAUGHLIN of Michigan. Is the work you do there so particular and so technical, requiring such highly trained men that it must be done by men in your bureau? Couldn't it be done by other men employed around that station and engaged in that general work of aviation?

Mr. MARVIN. Some of the aviation men might be able to do it. They could be trained. When the chief signal officer of the Army had the task of forming a personnel to do this work, he called upon the Weather Bureau to assist him. We spread about 150 men from the Signal Corps throughout our stations and gave them intensive training for a couple of weeks. That happened at the very early stages of the war. 150 men were not sufficient. They wanted to train more men and they established a military school at College Station, Tex. We gave them a high grade meteorologist and assistant and they employed another one, and these men went down and for several months they taught a school of over 300 recruits at College Station in Texas. Gave instructions in these matters that I am speaking of, pilot balloon observations, clouds and meteorological observations of all kinds. The flight of balloons is one of the most difficult kind of observational work in meteorology we have. It is much more technical than reading a thermometer. It takes a very capable man or a pair of men to start up these balloons and get the observations with sufficient accuracy to give us reliable results. The work is difficult.

In addition to these pilot balloon stations, my estimates here contemplate work with kites. We now have six stations at which kites are flown once a day or oftener, and sometimes continuously throughout 24 hours—36 hours when the conditions permit of it—and with the kites we are able to get observations of temperature, pressure and the humidity in the free air. We get the velocity of the wind in the free air also by means of a little instrument that is attached to the kites.

Mr. PURNELL. At what altitude—what is the highest altitude at which you can take these observations?

Mr. MARVIN. With kites?

Mr. PURNELL. Yes; or with these balloons, either one?

Mr. MARVIN. Some of these pilot balloons have attained altitudes as high as 10 miles, I think, or more.

Mr. PURNELL. I mean these balloons that you release. How high do they go?

Mr. MARVIN. Ten miles in extreme cases.

Mr. PURNELL. You can observe them 10 miles away?

Mr. MARVIN. That has been done. In the ordinary average case the altitude attained is lower than that, say, 4 or 5 miles, and lower, according to the visibility of the sky.

Mr. PURNELL. How high can you fly a kite?

Mr. MARVIN. We have gotten over 4 miles with kites. That represents the limit. Now, the pilot balloon work gives us motions of air up to, say, 50,000 feet. We can go higher in exceptional cases.

Kites will go up to 10,000 or 12,000 feet under ordinary working conditions. We frequently get that.

We want to use—and I provide in the language here for still a different means of exploring the free air by what we call the "sounding balloon." The sounding balloon is larger than the pilot balloon,

or we take two big pilot balloons and hitch them together and attach an instrument to the system. The difference between the pilot balloon and the sounding balloon is that the sounding balloon carries an instrument. That instrument makes a record wherever that balloon goes, and it keeps on going until the balloon bursts. There is a little parachute attached to it that permits the instrument to return gently to the earth, and we recover the instrument and get the record. The sounding balloon goes to very great height in the atmosphere under favorable conditions, over 20 miles in extreme cases. Our mechanicians in the Weather Bureau during the past year developed instruments to be used on sounding balloons which are extremely light; therefore, the balloon that is able to carry them is much smaller. We made observations with these sounding balloons before the war to a limited extent, but the rubber balloons that we needed for that purpose were all obtainable only in Europe.

Mr. PURNELL. Do peace-time conditions justify the expense and pains that it takes to carry out this work?

Mr. MARVIN. I can not too strongly emphasize how valuable the information which the Weather Bureau collected during peace times from its one aerological station before the war proved to be at the time of the war. It was almost the only information of the kind we had of the conditions in the free air within the United States.

Mr. PURNELL. I can see how that might be very valuable during the war, but I am asking you whether or not in your opinion this expense is justified during peace times?

Mr. MARVIN. I think as a peace-time proposition it is abundantly justified.

Mr. PURNELL. Is the principal object of it the conservation of human life?

Mr. MARVIN. The application of the knowledge obtainable only that way to the conservation of human life is one of its vital features.

Mr. PURNELL. Is that the principal feature of it?

Mr. MARVIN. That is, and the advancement of science. We have learned more about the science of meteorology probably since these methods were developed for investigating the upper air—the free air—than we ever knew before, because it has been within only the past 20 or 30 years that means were generally available to get into the upper air with instruments. Of course, there were a few cases where manned balloons went up, but these sounding balloons and pilot balloons that we sent up can be employed in considerable numbers, and nobody is killed or hurt. The balloon goes up with an instrument. Once in a while we lose the instruments but not often.

Mr. JONES. As a general rule, about how far away from where they started does that instrument drop?

Mr. MARVIN. The distances vary; sometimes it is 200 or 300 miles, sometimes it is less. And a peculiar feature about it is the high percentages of returns that we get.

Mr. McLAUGHLIN of Michigan. What is the percentage?

Mr. MARVIN. I am hardly prepared to say in figures. Eighty-five per cent. I should say. We expect at least 90 per cent of recoveries over the United States.

Mr. JONES. What is the value of the instrument?

Mr. MARVIN. The instrument costs us about \$100 at the present time, I think. We used to get them for about half that amount, but the instrument at the present time costs a great deal more than it used to.

Mr. PURNELL. How long before that information is available, if the balloon goes up several miles?

Mr. MARVIN. That information is not information that we can use telegraphically. It comes in a day late or several days late, but it serves to coordinate the surface observations of the conditions when that observation was made with the conditions in the free air.

Mr. PURNELL. I would like to know what particular value that information would be after it is recovered four or five days after the experiment is made?

Mr. MARVIN. It tells the metereologist what the conditions in the air were when he had certain conditions on the surface of the earth. Suppose we knew nothing about the atmosphere at all, except what we could observe at the surface. We are unable to determine the great motions of the atmosphere and the phenomena going on in it without the ability to explore the free air. Now, even if it takes us several days to make an investigation of that kind it has a bearing on the information which is before us to-day in regard to surface conditions, because it enables us to understand and interpret those surface conditions more fully and intelligently.

Mr. JONES. You and I and the rest of us here—suppose we are out in the field to-day; we know it is a drizzly, foggy morning; you send up your observation balloon and two or three days it comes back and convinces us that it is foggy that morning. What benefit is that?

Mr. MARVIN. We want to know why it is foggy. If we understand why it is foggy, we know a good deal more about it than we would to know simply that it was foggy. Now, it may be that these instruments will show that in a certain condition of the air the temperature was very abnormally distributed and that that foggy condition was the result of that abnormal distribution of temperature, and that that abnormal distribution of temperature was due to the overflow of winds from some particular condition of the atmosphere which we could see on the surface. It might have been the overflow from an area of low pressure or something of that sort; and it is the knowledge of the complete system of circulation in the atmosphere that we are trying to get at by means of these observations.

Mr. JONES. We can understand that phase of the knowledge part of it; what we are trying to get at is the benefit to be derived from it.

Mr. MARVIN. The knowledge of the laws of the circulation of the atmosphere is the thing that enables the forecaster to make his predictions. If he is ignorant of the fundamental principles governing the motions of the atmosphere, he is at a loss to make an intelligent forecast.

Mr. PURNELL. Isn't the science developed far enough now so that you are able to determine those things without this?

Mr. MARVIN. Mr. Purnell, we feel that we have done a good deal, but we feel we have not reached the limit. The science of metereology is a most difficult and complex science, because the phenomena of the atmosphere occur on such a gigantic scale. I can not take here in

the laboratory a piece of the atmosphere and make any approach to studies of the circulation of the air, of the systems that we have to deal with in making the forecast. Those systems of circulation cover thousands of miles in diameter, and we don't know what the conditions are in the vertical altogether. We are trying to find out by these means what the conditions are in the vertical. We have hundreds of pictures on the weather map as to what they are at the surface, but we are coordinating those surface conditions with the free air conditions at the same time. It is an important contribution to the science of meteorology, and it also enables us to aid those engaged in aviation by telling them the kind of flying conditions they are going to encounter when they go up into the air in the different strata.

Mr. RUBEN. We have a mail route from here to New York and one from New York to Cleveland and one from Cleveland to Chicago. Are those aviators getting information from your department from day to day?

Mr. MARVIN. I don't think they make a flight without knowing what our forecast is. We give it to them every day.

Mr. RUBEN. For instance, they leave here at 10 o'clock in the morning; before they leave do they get from your department the weather conditions and atmospheric conditions between here, say, and Philadelphia and New York?

Mr. MARVIN. Yes, sir; We give them the flying conditions, the visibility, and the currents of air that they are likely to encounter.

The inauguration of this work, gentlemen, was taken up in November of 1918 with Gen. Kenley, then director of military aeronautics, and forecasts began to be furnished the military service and for the flying operations every day in the regions where they were flying at that time. Under the present administration of the Air Service of the Government under Gen. Menoher, the present Director of Military Aeronautics, we have extended that system quite a bit. We have divided the United States into 13 zones. Mr. Chairman, I would like to have you examine these charts [submitting charts]. These are the zones in which we are making observations and furnishing forecasts.

The CHAIRMAN. Will you kindly go into details as to this chart and the different zones, in order that it may appear in the record?

Mr. MARVIN. Here is one more sheet that I will ask you to examine, and which shows on a small map of the United States the location of the present stations of the several kinds, also of those we desire to establish and maintain with the increased funds requested. The other map shows that as a mere matter of convenience we have divided the United States into 13 zones, so that we may say to the Air Service, for example, "For zone 2, good flying weather to-day; generally clear sky and good visibility; moderate varying winds, surface and aloft." Every day we supply to the Director of the Air Service forecasts for these zones, and they send them to their pilots wherever flying is in progress.

Mr. JONES. These boundary lines of the zones are arbitrarily drawn?

Mr. MARVIN. They are purely arbitrary. We might have a dozen or less.

Mr. JONES. Then you are apt to get the same conditions in part of zone 1 as you do in parts of zone 2?

Mr. MARVIN. Yes, sir; the forecasts would be similar in that case. Or we sometimes say in the northern portion or the southern or the eastern or western, etc.

These forecasts are sent to the Air Service every day. As I was going out this morning at the recess I met an officer in the Air Service. He had been before the Military Committee, and he said to me, "We were just telling the committee how valuable the work was that the Weather Bureau was doing in regard to aviation." That was rather gratifying to me, and we had some pleasant words about the matter. I can assure you that this service is sought for by the Air Service. It is needed by the Air Service to conserve the lives of the flyers and the property employed in aviation.

Mr. PURNELL. What has been the practical effect of it? Has it proven to be effective and valuable to the flyers?

Mr. MARVIN. I believe so. I have no statistics to show just how good it is. When they wanted to make a trans-Atlantic flight, the very first thing was weather conditions, and the Secretary of the Navy asked the Secretary of Agriculture to have the Weather Bureau help them out on that proposition. We obtained the cooperation of Great Britain to furnish certain reports from overseas and we furnished that information.

I might say that the start of the flight awaited the advices of the forecaster. He told them when to go on that trans-Atlantic flight. He told them the conditions that they were going to encounter. It proved that those conditions were almost identical with what they did encounter.

Mr. HARRISON. I suggest that you tell the committee what the Secretary of the Navy said about the flight of the *R 34*.

Mr. MARVIN. The same thing is true of the British dirigible. When that came over here that great craft was anchored there in the open air on Long Island. The weather conditions were exceedingly important to that airship. We took special observations at different times of the day, and furnished the reports to the officer in command in order that he might safeguard his craft. Finally we sent word to the commander that we advised him to leave at a certain time if he wished to escape a severe storm that was approaching. He left at midnight, if you will remember, and safely accomplished his get-away and the trans-Atlantic flight. The Secretary of the Navy wrote a letter—I haven't it with me—expressing his appreciation of the valuable service that had been rendered to the Navy and to the British people cooperating with us at that time. I will insert it in the record.

NAVY DEPARTMENT,
Washington, July 18, 1919.

From: Secretary of the Navy.
To: Chief of Weather Bureau.
Subject: Visit of *R-34*.

1. The work done by the Weather Bureau before, during, and after the visit of the British dirigible *R-34* has been keenly appreciated by the Navy Department, and by the British officers connected with this flight. The reports received were most reliable, and the last report sent by Maj. Bowle on the evening of July 10, undoubtedly was the prime agent in the safe departure of the ship.

JOSEPHUS DANIELS.

Now our regular daily aviation forecasts are valuable too, because they tell us so—I haven't the statistics that will unequivocally prove that, perhaps, but there isn't any question in my mind that it is a bad proposition for any considerable flying to be undertaken in this country without advices from the Weather Bureau. It is important to the shipping of the ocean that they should seek the information of the Weather Bureau as to the state of the sea over which they expect to sail, how much more important is it to the aircraft that they await the advices that we are able to give them before they venture out and risk everything—risk disaster?

Mr. RUBEN. Can you tell us what they are doing in England and France along this same line?

Mr. MARVIN. The meteorological service in England is in the air service.

Mr. McLAUGHLIN of Michigan. Right along that line, we have the Air Service in the Army, the Air Service in the Navy, and the Air Service in the Post Office Department. Shouldn't something be done so that there won't be a duplication of this work, and some agency take hold of it for all of them?

Mr. MARVIN. That is just what I wish to do, Mr. McLaughlin. As I said in my previous remarks, there should be one and only one meteorological service. We are serving the entire country. The Air Service of the Navy and the Army are willing that we should do this work if we will only do it, but we can not do it without an appropriation. They are not doing it because they are waiting for us to do it, and this estimate of increase is for the purpose of the Weather Bureau doing this work. We have the skeleton organization and the stations and arrangements by which we can collect this information, prepare the forecasts, and issue the advices and warning and information. We have all the organization for that; all we require is some additional funds that will enable us to make the extensions to our existing organization to do this new and additional work.

The CHAIRMAN. Are we to understand, then, that this is at the request of the Army and Navy?

Mr. MARVIN. Yes, sir.

The CHAIRMAN. That this service be extended in this way?

Mr. MARVIN. They cordially support this extension.

Mr. McLAUGHLIN of Michigan. Aren't they building up services of their own, each one of them?

Mr. MARVIN. I don't think so, gentlemen. If the Weather Bureau is strengthened in this work, I don't think you will have any trouble from any other department wanting to do this work.

The CHAIRMAN. Does this come at the suggestion of the two departments?

Mr. MARVIN. Not officially; no, sir. There is an interdepartmental committee on which there are representatives from the Army and Navy and the Signal Corps and the Weather Bureau. These bureau representatives support me in these increases in my estimate, and the taking over of that work; and the object of this interdepartmental committee or board is for the purpose of coordinating and making this work effective between the various departments, so that what the Weather Bureau does will be suitable for and will supply the needs of the other bureaus.

The CHAIRMAN. What assurance can we give the House that there will be no duplication of this work?

Mr. MARVIN. There is no authority of law, Mr. Chairman, for anybody else to do it.

The CHAIRMAN. I understood you to say that it was the suggestion of the other departments that this work should be carried on by you and by no other bureau or department.

Mr. MARVIN. As I understand the authority of law in this matter, it is this: The Weather Bureau has adequate authority under the organic act, which I read into the record this morning. During the war the President by proclamation assigned to the Chief Signal Officer the responsibility of developing the meteorological work in the Army. The Chief Signal Officer operates under that authority at the present time and we are in close cooperation. So far as I know, the Air Service is not making any meteorological observations. The Navy is conducting certain meteorological observations at naval base stations. I think at only two or three at the present. As stated, the Weather Bureau gets the observations.

The CHAIRMAN. Then that work is carried on in three different branches of the Government?

Mr. MARVIN. The pilot balloon observations are made by the Navy and Army at the present time. That is not a duplication, however, Mr. Chairman. I wish to make it clear that there is no duplication, because we do not have a station where they have a station. You can see by the little red dots on the map that they have stations in certain localities, which do not duplicate but supplement our stations.

The CHAIRMAN. It is carried on in three distinct branches?

Mr. MARVIN. To a certain extent that is true.

Mr. McLAUGHLIN of Michigan. And I thought it was your purpose to have a station at each one of their stations?

Mr. MARVIN. No, sir.

Mr. McLAUGHLIN of Michigan. It says that about 20 Army stations here.

Mr. MARVIN. Those are operated by the Signal Corps.

Mr. McLAUGHLIN of Michigan. This says that through the co-operation with the Signal Corps, the Weather Bureau has inaugurated a limited forecast and warning service regarding upper air conditions at about 20 Army stations.

Mr. MARVIN. That is a service of information and weather advices that we render these stations at the military posts. The observations are made by their men and telegraphed to us. We give the advice based on all our observational data. As I said a moment ago, there are now 12 Army posts. The number has been reduced since we prepared the estimates.

Mr. McLAUGHLIN of Michigan. Tell us why it would not be advisable to have your station at the flying station.

Mr. MARVIN. The ultimate thing will be to have a pilot balloon station, either at a flying field or near a flying field, according to where it is best located to get the information we want. It is not necessary in order to make forecasts that the stations be at the field exactly, but near there.

Mr. McLAUGHLIN of Michigan. To serve that field?

Mr. MARVIN. To serve that locality. The small map in front of you, Mr. McLaughlin, shows approximately, by the symbols, where the stations are at the present time and where we expect to put new ones.

Mr. LEE. That is where they have permanent stations?

Mr. MARVIN. Our stations will be permanent. We will not put any stations where an Army or Navy station exists, or would be placed. Our stations will be only at places that we properly occupy. The cooperation of the service operates to utilize stations at other places which the Army and Navy maintain, at Pensacola, and a few coast stations which the Navy may occupy. We would not put a station at Pensacola, for instance, but the observations supplied by the Navy station at that base are very valuable to us and necessary.

Mr. McLAUGHLIN of Michigan. Now, these aircraft are going to start from a certain station, and it would seem to me that it would be advisable for them to know—if it is necessary for them to know at all, and, of course, it is from what you say—I would think that they would want the information as to conditions there.

Mr. MARVIN. That is just what we give. We do not have to have a station at every place to which we send forecasts. We have 200 stations now which show the conditions over the whole continent, and we don't ask for any additional stations covering the general surface condition.

We now have only 11 of these pilot balloon stations. We want to add 25 more. You can see that that doesn't cover the country very extensively, but we need stations in the far West to cover zones and fields in which flying will be conducted.

The CHAIRMAN. Professor, I take it that the practical and economical thing to do would be to bring all of this under one head. Are we to understand that this service is to be conducted by your bureau and also continued by the Army and the Navy; or did you come to some agreement as to who shall conduct this service?

Mr. MARVIN. I think the agreement—the understanding—is that the Weather Bureau should do the work.

The CHAIRMAN. It seems to me that you could get together and agree as to who shall be charged with this service.

Mr. RUBEY. The only way to get at that would be to find out whether the Army is going to ask an appropriation for this work and whether the Navy is going to ask for it and whether the Post Office Department is going to ask for it; and if they are not going to ask for it and are willing it should be done by the weather Bureau, that would probably settle it.

The CHAIRMAN. I am frank to say that, unless we can know, we will cut out this appropriation. We can not consent to the setting up of duplicate services in each department of the Government.

Mr. HARRISON. I think it ought to be pointed out that this appropriation was originally suggested by the National Advisory Committee on Aeronautics, composed of representatives of all these agencies appointed by the President under authority of law.

Mr. MARVIN. It started in that way originally.

Mr. McLAUGHLIN of Michigan. What committee did you say?

Mr. HARRISON. The National Advisory Committee on Aeronautics, appointed by the President in compliance with a provision in one of the appropriation bills.

The CHAIRMAN. It seems to me there should be sufficient cooperation between the different departments of the Government to settle such a question.

Mr. MARVIN. I think the question is settled, practically.

The CHAIRMAN. Have you a definite understanding?

Mr. MARVIN. This interbureau board is entirely in accord as to the Weather Bureau doing this work.

The CHAIRMAN. We are taking up a lot of time. I suggest that you take the matter up with the other departments. If you come to an agreement, we will give it consideration; but I take it that, until you do, we will hardly appropriate funds for two or three different departments to carry on the same work. It goes without saying that it would be a proper policy, or at least economy, to do that. We will pass this for the present.

Mr. JONES. The other departments have made a book of estimates, haven't they?

Mr. MARVIN. I don't know of any provisions in any other department for work of this character.

Mr. JONES. Have you examined them?

Mr. MARVIN. I have not. Mr. Chairman, item 58 is new language and a new appropriation. It reads: "For the establishment and maintenance of special stations in national forests and elsewhere, the collection of reports and the issuing of forecasts and warnings in connection with the protection of forests from fires, in cooperation with the Forest Service, State and other organizations, including salaries, travel, and other expenses in the city of Washington and elsewhere, \$15,000."

Several years ago it was found that the reports of the weather bureau in the West could be made very valuable in the prevention and suppression of forest fires.

Mr. McLAUGHLIN of Michigan. How?

Mr. MARVIN. By sending out in advance to the foresters, fire wardens and others warnings of the weather conditions that were favorable for the spread and inception of forest fires. During rainy weather and wet seasons there is little danger of forest fires, but when the weather becomes dry and droughty and hot, and the winds spring up and blow firebrands about, and where logging operations are carried on, it starts and spreads conflagration. The people in the Northwest, the lumber interests in the Northwest, went to our Oregon men to know if they could not give them advices in advance in regard to where the unfavorable conditions of weather would be. They took the matter up and worked up a service on that basis, and that has been in operation under scarcely any appropriation—it is like these other things that I said the weather bureau did every now and then to help out, up to the limit of our ability. That was done very successfully. A year or so after that, we asked Congress to give us an appropriation for this matter, and it was included with some other estimates. Half of the amount we asked for was granted, but the language in regard to the fire-fighting work was omitted, and we have felt that we were not justified in spending any considerable amount on the work.

We would have taken this matter up two or three years ago more vigorously if it had not been for the war conditions. Now it

seems that we must bring this matter up at the present session because the work is so greatly needed.

Mr. McLAUGHLIN of Michigan. It is difficult for a layman to question or cast out on statements by you scientific gentlemen, but you speak of dry conditions under which fires are produced. Fires come generally and naturally, I would suppose, after a long-continued dry spell. It would not seem to me that it would take any weather observations or scientific investigation to disclose that condition when it comes and prevails for a long time. Fires come then, and it doesn't do any good to foresee it, does it?

Mr. MARVIN. I think it does. Resolutions have been passed on numerous occasions by forestry and fire-fighting associations of the West, recommending increased appropriations for this service. The extensive and destructive forest fires that prevailed this summer in the Northwest emphasize the need for this service and its extension. The value of the service is shown by a letter from the chief fire warden of the State of Washington, if you will permit me to read it, dated Seattle, Wash., August 11, in which he asked to have it arranged that telegraphic warnings of fire weather conditions be sent to some 200 or 300 logging operators in the logging camps under the supervision of the association. He says that more than one-half of the fires reported for this year have occurred in logging camps, and that the only way to prevent these fires is to cease operating fire-emitting engines during extremely hazardous weather. The plan is to advise the operators that telegrams will be sent them advising them of the approach of dangerous conditions and suggesting that they close down upon the receipt of these advices.

Mr. JONES. I can not agree to the statement that one-half of the fires reported this season have occurred in logging camps.

In the first place, the lumbermen themselves are more interested in the prevention of fires than any other class of people; and the fires in the forests are started by hunters and campers, 95 per cent of them. That is true in the Adirondacks, and I think it is true everywhere else where hunters and campers assemble.

Mr. MARVIN. We are performing this service to a limited extent at the present time. Here is one of the cards that we send out [indicating]. That is part of the service. This gives the forecast of the conditions where forest fires are likely to be aided by weather conditions and contains cautions against the production or starting of forest fires and solicits cooperation. There is educational work on this card for the use of campers, excursionists, logging men, and everybody to whom these things will be distributed. The object is to get hold of the excursionists and the campers. We place admonitory words there.

Mr. JONES. I think that [referring to the forecast card] is correct. That is the reason of the fires, too, the reason set forth there as the cause of the fires.

Mr. MARVIN. Now, I am not advocating anything in my own behalf at all. I am simply trying to satisfy the demands that are made upon us.

We have on file also a letter from Hon. Burton L. French, representative from Idaho, to the Forest Service, together with a copy of the acting forester's reply, urging that funds be set aside for the

use of the Weather Bureau in connection with weather forecasts and forest fire work. In transmitting this correspondence to the Weather Bureau, the Acting Forester says:

The Forest Service will appreciate any favorable consideration which can be given by you to the suggestion made by Mr. French as to the inclusion of a \$10,000 item in the appropriation estimates for the fiscal year 1921 for forecast work in Montana and Idaho and Oregon, with special reference to forest fires. As you know, the present season is one of the worst which has been experienced since the national forests were taken in under the administration of the Forest Service, and the expenses this year convince me that accurate weather forecasts would be of great assistance in shaping an organization for the prevention and suppression of forest fires.

The amount named by Mr. French, \$10,000, is insufficient, under present conditions, and we are asking that the amount be set at \$15,000.

The CHAIRMAN. Who is that from?

Mr. MARVIN. Hon. Burton L. French, Representative from Idaho.

The CHAIRMAN. Is that to establish a new station?

Mr. MARVIN. The purpose of this?

The CHAIRMAN. This \$15,000 item?

Mr. MARVIN. The \$15,000 is to enable us to put in certain instrumental equipment of a limited character for measuring wind velocity at forest stations, under care of the Forest Service and under care of the State forestry organizations. We pay no salaries for any of the information furnished.

The CHAIRMAN. It reads:

For the establishment and maintenance of special stations in national forests and elsewhere.

Does that mean the establishment of new stations?

Mr. MARVIN. Not new stations from the point of view of the big city stations. We simply put in an anemometer and a wind vane, perhaps.

Mr. JONES. Where will these operations be placed?

Mr. MARVIN. They will be placed where they are making these fire observations. At lookout stations and where they give useful information and where they can be cared for by men already there.

Mr. JONES. Fire control posts?

Mr. MARVIN. Yes, sir; and these men will give us the readings. The readings will be telegraphed into our forecasting offices, and the information will be put on the weather map or charted otherwise in order to aid the forecasters in determining the localities in which these warnings should be issued, and the nature of the warning. We will then distribute the information to those regions where it is most dangerous.

Mr. JONES. Isn't there telegraph and telephone service now where each of these fire wardens is located under forestry protection?

Mr. MARVIN. Yes, sir; and because of the existence of such means of immediate communication we can administer this service.

Mr. JONES. Isn't their telegraph and telephone service taken care of in their appropriation? You ask for telephone and telegraph service in connection with this \$15,000.

Mr. MARVIN. Any messages going over their lines is free, and none of the money would be spent in that way, but the message must go from the terminus of their lines into our system through

commercial lines to reach us; and it is that service for which we must pay.

Mr. JONES. To give you a concrete example, the fire warden on top of a certain mountain, for instance in the Adirondacks (he is placed there under the supervision of the State Department of New York); he has got his observation station there and stays there throughout the dry season; with his telescope he can look all around the surrounding territory; if he sees a fire start or smoke emanating from some particular place he phones to the nearest available point and says there is a fire in such and such a lot and such and such a territory. How will this service of yours aid him in the stopping of that fire or putting it out in case it does start?

Mr. MARVIN. It would not aid him in stopping that fire, possibly. The value of warnings of the production of forest fires would enable the fire wardens to observe the greatest precautions in those districts which were the most threatened. Now, after a fire has started it may become a question of when it is going to rain and help put out the fire; that is all included in our forecast.

Mr. JONES. When they see a fire they will put it out and not wait for rains.

Mr. MARVIN. They may not wait for rains, but it would be of much value to them.

Mr. JONES. They might have to wait three or four days.

Mr. MARVIN. Of course, but it is of value to them to know what is coming, and that a rain coming in a certain section. The forecasts of coming rains in the dry season are of value without fires.

Mr. JONES. They will not wait for a rain.

Mr. MARVIN. They may not wait for a rain; the fire may burn until the rain helps to stop it. At any rate, this is represented to us by these people as a useful service that we ought to render.

The question is, What are we going to do about it? There is no other agency of the Government that has the organization to do this and it can not be done otherwise. It is simply a question, Are we to do it or let it go undone? As I said a moment ago, it is a thing that grew up several years ago. If the associations in the West interested in forest conservation are asked, they will testify to the value of the services we have already rendered. I think this letter from the Chief Forester indicates that, and as I say, it is a question whether the bureau is to be furnished with funds to do this work or must it be left undone?

Mr. HUTCHINSON. Professor, I would like to ask you a question right here. I see in the table below here you have "special observers, from \$1 to 50 cents per observation." I would like to know if the observer that gets this enormous salary of \$1,260 can get that?

Mr. MARVIN. No, sir; the "special observers" are private citizens who are willing to give a part of their time to do this work. I spoke this morning of 5,000 observers that we pay absolutely nothing. We give them certain publications and the like. Now, when we ask a man to prepare a telegram and file that at a telegraph office within a few minutes we are willing to pay him 25 cents per observation, and sometimes a little more, but at the maximum we can not pay that man more than \$300 a year under civil-service rules. Under that less than \$1 a day is the maximum we can pay.

Mr. McLAUGHLIN of Michigan. When he goes to a telegraph office with a telegram, what does he put in the telegram?

Mr. MARVIN. It may be the state of the wind, or the temperature, or the stage of the river, possibly; in this fire-weather work, it may be the amount of rainfall or the reading of the anemometer; in some cases it may be a cipher message to convey a lot in a few words; in that case he has a code book and must take out the words that will convey the observation. We pay a small fee for those observations.

Mr. McLAUGHLIN of Michigan. If he reports that there is a high wind, what is done?

Mr. MARVIN. He reports the reading of the anemometer, 28 miles per hour, northwest, or cloudy, or whatever may be the state of the weather; he does not tell us anything about a forest fire, or anything like that. When the forecaster receives the report the observations are entered on a map of the region and go to make up a great picture of the atmospheric conditions, and the forecaster makes his deductions and forecast.

Mr. HUTCHINSON. Right there, I want to ask if you have in your bureau any men drawing two salaries?

Mr. MARVIN. No, sir; not contrary to any law.

Mr. HUTCHINSON. Perhaps not contrary to law, but have you any?

Mr. MARVIN. I think that in proper cases the law authorizes men to receive two salaries, providing the aggregate amount does not exceed \$2,000. There are no men at the present time in the Weather Bureau receiving two compensations from the Government.

The CHAIRMAN. Was there not an order issued during the war to the effect that they might draw salaries up to \$2,000?

Mr. HARRISON. There is a law which prohibits any employee of the Government from drawing two salaries if the amounts aggregate more than \$2,000.

The CHAIRMAN. But they may draw up to \$2,000?

Mr. HARRISON. Yes, sir.

The CHAIRMAN. You have 5,000 of these local reporters?

Mr. MARVIN. We have nearly that number. The number who receive 25 cents a time for observations is roughly 1,500, I should say; that is, the corn and wheat observers and the observers on the rivers, and we pay a large number of men who make an observation and file a telegram this small compensation.

The CHAIRMAN. They are the ones who were formerly paid a yearly compensation?

Mr. MARVIN. No, sir; we never had men of that class; these men are given so much for an observation. In some cases there is a monthly wage not to exceed \$25.

The CHAIRMAN. About 5,000 of them?

Mr. MARVIN. About 1,500.

The CHAIRMAN. Altogether?

Mr. MARVIN. One thousand five hundred that receive this kind of compensation.

The CHAIRMAN. How many altogether?

Mr. MARVIN. There are 5,000 men that receive no compensation and about 1,500 this small compensation.

The CHAIRMAN. That averages nearly two to a county?

Mr. MARVIN. One to a county.

The CHAIRMAN. There are about 3,500 counties?

Mr. MARVIN. There are a few cases with two in a county.

The CHAIRMAN. And they are to continue without salaries?

Mr. MARVIN. Without salaries.

The CHAIRMAN. What have you to say about item 59? That is a new item, "For the extension of marine meteorological work, the collection of weather and water temperature reports at sea, the preparation of charts, the determining of fog zones, the distribution of marine meteorological information in the aid of navigation, and to carry out the provisions of the act of Congress approved June 17, 1910 (36 Stat. L., p. 508), for the collecting and furnishing of meteorological information to the Hydrographic Office of the Navy Department for use in the preparation of pilot charts, including salaries, travel, and other expenses in the city of Washington and elsewhere, \$50,000."

Mr. MARVIN. This is in connection with the extension of our marine meteorological work, the collection of weather and water temperature reports at sea, and the preparation of charts, etc., and like the item with reference to weather warning, it is a new item. It has been conducted in an inexpensive way for very many years. For many years the Weather Bureau has been engaged in the collection of meteorological reports from vessels at sea, the principal object of which has been to supply data required for the pilot charts published by the hydrographic office of the Navy Department, as required by act of Congress. This work has been conducted with very little expense. The observations are made under cooperative arrangements with vessel captains of ships of all nationalities. No payment is made for the observations other than for the marine information and meteorological publications furnished, and the correctness of the barometers when the ships enter ports at which Weather Bureau stations are located. The only additional expense has been for salaries of a few clerks engaged in charting and filing the data now furnished the hydrographic office. The placing of so many United States mercantile ships on the seas has created a greater demand than ever before for definite information pertaining to the surface meteorology of the ocean, which is necessary to further develop the existing service.

Employees of the Weather Bureau at stations located in important seaport cities must visit ships and confer with vessel masters and enlist cooperative reports, check instruments, and supply observers with information. Maps and bulletins must be prepared and issued containing the current meteorology of the ocean as far as possible, especially the great highways and lanes of marine travel, in order to make available accurate information as to stormy regions and occasions. Up to the present time, masters of vessels have provided their own instruments, and experience shows that observations are often highly inaccurate. However, it is not the purpose of the Weather Bureau to supply instruments to vessel masters, except possibly in the case of a very limited number of selected ships plying waters where data are now deficient or entirely lacking, or where vessels render reports by wireless in important regions. Recent scientific studies of these matters lead to the conclusion that the surface-water temperatures of the ocean exert an

influence on the weather of coastal regions. Because of the slow changes in water temperatures the necessary information has a forecast value with reference to the future weather conditions. In special cases the ocean conditions may justify a forecast several weeks in advance. The present project will contribute in an important way to this and like studies.

The object of this is to extend our domain over the ocean and rehabilitate the conditions that existed before the war. Before the war the vessels of all the nationalities of the world were furnishing us with reports by mail; they come in by mail when the vessel reaches port. The observation is made by the masters of the vessels, who receive no compensation. During the war the ships were withdrawn from traffic, and England especially withheld permission to furnish reports and we lost most of our observational work. We are now striving through the marine agencies at ports of entry to rehabilitate this service and extend it. The Shipping Board has extended its good offices to us in encouraging the masters of vessels to furnish information to us, and the information we are able to give to them is sufficient to justify them in taking an interest in the work, the best that can be done. The other nations will come in on this and ships of foreign nationalities will furnish us information in exchange for the information we give them. We intend to develop a map, issue especially to show weather conditions over the great lanes of travel of the North Atlantic. Forecasts will indicate what kind of weather they are going to encounter on their various trips. These requests are made to us, and it is our effort to supply that information. Our law requires us to perform our service for the benefit of navigation and we are now undertaking to do that in this way.

Some of this upper air work will be extended over the ocean. You have seen during the past summer the Atlantic Ocean has been navigated twice by aircraft, and it is impossible to anticipate what will happen in the future in regard to oceanic aerial navigation.

Mr. McLAUGHLIN of Michigan. You have taken care of that in another item.

Mr. MARVIN. Of the upper air work, yes. This is for the surface conditions of the oceans from ships' reports. In the course of the next few years the ocean will be covered by many ships from all points, and if each makes an observation once a day and makes a report on arrival at port we can chart those observations in conjunction with like reports from vessels at other points. Thus we have a picture of the meteorological conditions on the ocean.

The CHAIRMAN. Are we to understand that this is a transfer of activities from the Navy Department?

Mr. MARVIN. No, sir.

The CHAIRMAN. The notes read, "Up to the present time masters of vessels have provided their own instruments, and experience shows that observations are often highly inaccurate."

Mr. MARVIN. In some cases instruments are inaccurate.

The CHAIRMAN. Is the Navy doing any of this work at the present time?

Mr. MARVIN. No, sir; the Navy, of course, is not occupying the ocean except in a very incidental way. During peace times they may

patrol the coast, or go out on manouvers, but the number of merchant ships on the ocean is far in excess of anything the Navy could do. The Hydrographic Office prints a map of the ocean on which the average weather conditions are shown.

The CHAIRMAN. Is the Hydrographic Office doing anything of this kind now?

Mr. MARVIN. No, sir; the law provides that we give to them the results based on the information we receive.

Mr. McLAUGHLIN of Michigan. You spoke of reports made by masters of vessels after they reach ports telling of the kinds of weather through which they passed on the voyages.

Mr. MARVIN. The observations give us the pressure of the air, the temperature of the air, the temperature of the water, the direction of the wind, and the cloudiness and all those particulars, the same as we observe at our continental stations.

Mr. McLAUGHLIN of Michigan. What good will that do you for the future?

Mr. MARVIN. It is a case of understanding the great question of the circulation of the atmosphere; of the laws governing the changes in weather from day to day. These daily weather maps we construct give us a picture of the atmospheric conditions over the land. We know little of what conditions are over the ocean on any given day except as we go out there and observe them.

Mr. McLAUGHLIN of Michigan. Are those conditions ever twice alike?

Mr. MARVIN. Hardly ever. When the trans-Atlantic flight was planned we went into the past records and we examined map after map, both from Newfoundland direct to Ireland, and from Newfoundland to the Azores, to Portugal and England. We gathered all the information we could in regard to the atmospheric conditions on the ocean, and that was drawn upon to aid in the advice to the Navy in planning that flight. A paper has been published setting that information forth, and it enables us to formulate an opinion on certain conditions which favor or prevent a flight of that character. Now, we must wait until conditions come which are favorable. We have to wait, and we gave the Navy information at Trepassey Bay when to start. They had to wait several days and we gave them information and it could not have been done without the information we had collected during long past years. We do not want to stop now; we want to continue that collection of information.

Mr. McLAUGHLIN of Michigan. How do you justify the purchase of these instruments and the gift of them?

Mr. MARVIN. We do not purchase them and give them away.

Mr. McLAUGHLIN of Michigan. There is something about that here.

Mr. MARVIN (reading):

However, it is not the purpose of the Weather Bureau to supply instruments to vessel masters except possibly in the case of a very limited number of selected ships plying waters where data are now deficient or entirely lacking or where vessels render reports by wireless in important regions.

There is a qualification there.

The CHAIRMAN. Why should you furnish any of these vessels with instruments?

Mr. MARVIN. Mr. Chairman, if we knew there was a vessel plying far north in the Atlantic, for example, we might consider it a very proper investment to lend the master a barometer worth \$25 or \$30 to get that information, because there are very few vessels go into that region, and we would like to have that exception made so that we could furnish a few instruments in some cases. We do not expect to furnish instruments in any considerable number of cases.

The CHAIRMAN. If that is all, let us hear something about the remaining item, No. 6, which reads as follows:

"The Secretary of Agriculture shall cause the premises known as Mount Weather, situate at Mount Weather, in the counties of Loudoun and Clarke, in the State of Virginia, and comprising 84.81 acres of land, more or less, together with the buildings and other improvements thereon, including laboratories, cottages, sheds, stables, shops, heating and power plant, kite shelter, and other buildings of whatever nature, together with all the rights, easements, and appurtenances thereto belonging, to be sold at public sale and conveyed to the highest bidder for cash, first having given not less than 30 days' public notice of the time, place, and terms of sale immediately prior to such sale, by publication in at least two newspapers having a general circulation in the county or sections of the counties where the premises are situate; the net proceeds of the sale, after deducting the expenses incidental thereto, to be turned into the Treasury as miscellaneous receipts."

Mr. MARVIN. The only remaining item is for language in the appropriations to authorize the sale of Mount Weather.

The CHAIRMAN. How much money has been expended at Mount Weather?

Mr. MARVIN. In response to action by the Congress in 1914, I think a statement was submitted showing the original cost to the Government of the properties and improvements made at that place; a complete outlay of \$209,581.70. There were \$28,000 used in replacing one building which was destroyed by fire, a balance of \$181,581.70.

The CHAIRMAN. What building was that?

Mr. MARVIN. The original observatory building, a stone building, originally occupying the site of what is now the main building. The large building replaced the stone building destroyed by fire.

Mr. McLAUGHLIN of Michigan. The Government does not carry insurance on any property?

Mr. MARVIN. There was no insurance on that property.

The CHAIRMAN. Can you describe which building it was? I was up there last year.

Mr. MARVIN. The brick building with the large columns.

The CHAIRMAN. Is \$28,000 all that building cost?

Mr. MARVIN. No, sir; that is not the cost of the building itself, but that was the cost of the building originally there that was lost.

The CHAIRMAN. What is the cost of the building that is there now?

Mr. MARVIN. That cost \$49,848.98.

Mr. JONES. When was that burned down?

Mr. MARVIN. The original building was burned in 1907, I think.

The CHAIRMAN. What is the cost of the upkeep of the place now?

Mr. MARVIN. In 1914 we removed all of the activities from that station, except certain observations, and placed the property in the hands of a caretaker at a cost of—I think we are paying \$1,400; this statement does not show that. We have a man in charge temporarily of the property, and he is making certain observations for us.

We removed all the activities from that station, after having been in operation several years, and I wish to say this, that we hardly

could have foreseen the value which the observations and data collected at that station came to have during the war. They were almost the only observations made in this country in the upper air, and that gave us the first data to answer the inquiries in relation to the upper air to military departments.

Mr. JONES. I would like to have a little history of it; this is all new to me, and I would like to know why was it established, and what was done with it, and why was it disbanded?

Mr. MARVIN. The history of that institution would be a very long one, but briefly it amounts to this: The Chief of the Weather Bureau in 1902 bought a tract of ground up there for the purpose of erecting a laboratory and a scientific institution to pursue a number of lines of work and put up a number of buildings. That work was carried on for a number of years. In 1909 we began to carry on the kite and balloon work there. During that time a number of buildings were erected. Some were used for magnetic observations. Other buildings were designed for investigations in meteorological physics.

The CHAIRMAN. Mr. Harrison has a copy of the report made by the secretary to the Speaker which gives full information. What is the committee's wish as to inserting it in the record? [After some informal discussion by the members of the committee.] We will have the report incorporated in the record.

(The report referred to follows:)

DECEMBER 9, 1914.

THE SPEAKER OF THE HOUSE OF REPRESENTATIVES.

SIR: Pursuant to the instructions contained in the act of Congress approved June 24, 1914 (Public No. 122, 63d Cong., H. R. 13679), entitled, "An act making appropriations for the Department of Agriculture for the fiscal year ending June 30, 1915," viz:

* * * * *

"The Secretary of Agriculture is hereby directed to report to Congress at its next session the present condition and value of the tract of land consisting of eighty-four and eighty-one one-hundredths acres of land, more or less, known as Mount Weather, and located in the counties of Loudoun and Clarke, in the State of Virginia, the original cost of said land, together with the cost of the improvements thereon and the present value of such improvements, the amount which in his opinion can be realized from the sale of said real property, including buildings and other improvements, at private sale, and whether in his opinion it would be most advantageous to sell the same at public or at private sale, and to advise Congress as to whether it would be better for the Government to sell said property or to lease it. And the Secretary of Agriculture is authorized, in his discretion, to discontinue the use of Mount Weather as a weather station and if necessary place a keeper in charge thereof for its protection and care, the expenses thereof to be paid out of the appropriation made herein for necessary expenses of the Weather Bureau outside of the city of Washington."

* * * * *

I have the honor to report, as follows:

Description of property.—Mount Weather (Virginia) is the name given a group of buildings erected by the Weather Bureau for special aerial and research work on top of the Blue Ridge Mountains in Loudoun and Clarke Counties, about 20 miles south of Harpers Ferry and 47 miles in a direct line west of Washington. It is 6 miles south of Bluemont, Va., the nearest railroad station and present terminus of the Washington & Old Dominion (suburban electric) Railroad line. The grounds have an area of 84.81 acres; are roughly square in outline, lying on both sides of the ridge, the top of which is 1,725 feet above sea level, and about 1,200 feet above the valleys on either side.

It overlooks to the west the entire Shenandoah Valley from Strasburg to Harpers Ferry, and to the east all that portion of Piedmont-Virginia Valley between the Blue Ridge and the Bull Run Mountains.

Original cost to the Government.

Land, first purchase of 67.25 acres (September, 1902)-----	\$1, 863. 15
Land, second purchase of 17.56 acres (September, 1903)-----	850. 00
Total cost of land-----	2, 513. 15

Buildings and improvements.

Administration and observatory building, erected 1909; brick, tile, and concrete; three stories and cellar; 18 rooms; cost-----	\$49, 898. 41
Machine shop and balloon shed, erected 1904; two-story frame and stone building; 8 rooms; cost-----	8, 817. 00
Central heating and power plant, erected 1909; one-story stone building; boilers and electrical equipment sufficient for supplying heat, light, and power for the entire plant; cost-----	11, 964. 74
Absolute building and variation building (for terrestrial-magnetic work), erected 1906; 2 one-story frame buildings, used in connection with investigations in terrestrial magnetism; cellar under each; the walls are about 4 feet thick, of double construction, packed with sawdust to secure constant temperature conditions within; cost-----	15, 904. 55
Stables: 1 two-story frame and stone stable and 1 two-story frame stable; cost-----	2, 800. 00
Farm cottage for dwelling purposes, remodeled 1905; a two-story frame building; 9 rooms; cost-----	1, 300. 00
Physical laboratory, erected 1909; three-story stone building; 16 rooms; cost-----	37, 521. 51
Cottage for dwelling, erected 1909; three-story frame building; 15 rooms; cost-----	11, 246. 34
Reel house and kite shelter; a circular frame building, 9 feet in diameter; cost-----	1, 738. 69
Repairs and permanent improvements-----	37, 823. 31
Administration building destroyed by fire; cost-----	28, 000. 00
Total cost to the Government-----	209, 527. 70

Or, omitting fire losses (\$28,000), original cost remains----- 181, 527. 70

Most of the buildings are new, or have been maintained in thorough condition of repair. The present valuation is, however, placed at 60 per cent of original cost, or approximately \$108,000. And, including \$4,250 for the grounds, gives a total of \$112,000.

PRESENT CONDITION AND VALUE.

Grounds.—Condition, as a whole, excellent. More than one-half the tract is rocky, covered with trees and shrubs, and not suitable for any agricultural purposes except grazing; remainder cleared and about one-half acre is utilized for growing garden truck, etc. Ground improvements consist of some clearing of trees and underbrush; laying out and constructing necessary roads and drive-ways. Latter, about the upper part of the grounds, have been built of crushed stone in good substantial manner, and connect with the public highway, county road, from Bluemont.

Entire tract well inclosed, partly by a stone-wall fence and remainder by wire fencing.

Land values.—Improved lands between Mount Weather and Bluemont have been sold within the past year or so at prices of from \$40 per acre, for orchard purposes, to \$100 per acre, for summer residence sites, location and outlook adding considerably to values for residence sites.

The Weather Bureau tract is well situated for residential purposes, and is considered by those having a knowledge of local real-estate values to be worth \$50 per acre, not including, of course, the value of the improvements.

The special scientific investigations heretofore conducted at Mount Weather have been transferred to the new station established near Omaha, Nebr., and to Washington; and most of the scientific instruments and apparatus have now been removed.

•The chief obstacle to our continued use of the property is the present poor condition of the road from Bluemont, affording access thereto. Arrangements

have been made, however, to continue all needful meteorological observations at Mount Weather, including preservation and care of buildings and grounds, at a cost of less than \$2,000 per annum.

The buildings and grounds have been inspected by officials of other bureaus of this department and are not found suitable for their use in any way.

The buildings are of good, durable construction, are fairly well arranged, and could be adapted for use as a summer hotel or country club, a sanitarium, or possibly for school purposes.

Whether this property should be sold at private or public sale is, we think, a question that should be left to the judgment of Congress, with a recommendation that the present valuation of the property be set at \$112,000.

Based on personal observation of the Chief of the Weather Bureau extending over the entire period back to several months before the date of purchase, it is believed the location of this property is such that neither the buildings nor grounds could be leased to advantage in any way, either as a whole or in part, and such action is not recommended.

It is also impracticable to dispose of the property to advantage at forced sale at this time, and it is recommended it be held for sale later when a reasonable price may possibly be had.

Respectfully submitted.

D. F. HOUSTON, *Secretary.*

Mr. JONES. In a few words, why was it given up?

Mr. MARVIN. After five years we found it costly to maintain it. The property is located on the Blue Ridge Mountains, about 6 miles from the terminus of the Old Dominion Railway. Supplies have to be hauled in, and the men were more or less isolated there and were not contented in the conduct of the work. We had about five years of observations at that point in the kites and balloon problems, and it was not such a good place for that kind of work, because we were too near the ocean. We could do the kite work, but some of the balloon work could not be conducted there, because the balloons would move eastward and drop in the ocean.

Mr. JONES. Was it reestablished at some other place?

Mr. MARVIN. We established a station at Drexel, Nebr., and moved equipment out there.

Mr. TINCER. What kind of land is it?

The CHAIRMAN. It is one of the most beautiful sites in America. How many acres have you there?

Mr. MARVIN. Eighty-four and eighty-one hundredths acres.

The CHAIRMAN. What did the department pay for the land?

Mr. MARVIN. The original cost of the land was \$2,513.15. The first parcel of 67½ acres was purchased for \$1,863.15; a second parcel was purchased for \$650, or a total of \$2,513.15.

Mr. JONES. You say it is 8 miles from a railroad?

Mr. MARVIN. Six miles from the terminus of the Old Dominion Railroad.

Mr. JONES. What point is that?

Mr. MARVIN. Bluemont, Va., about 60 miles west of Washington.

The CHAIRMAN. Does the \$209,000 include the roads?

Mr. MARVIN. That includes everything.

The CHAIRMAN. Are you through, Professor?

Mr. MARVIN. I believe that is all, except in concluding I would like to say that this work we are asking money for is all legitimate work of the bureau and will help to strengthen the hands of the bureau in meeting demands made upon it from outside sources. I hope you can see it from that point. The increases are made necessary from the

fact that our appropriations stood still all during the four years of the war. We must now rehabilitate the service along all lines.

Mr. HUTCHINSON. Professor, did the war increase your activities at all?

Mr. MARVIN. Very little, except the appropriation for aerological work. That was an appropriation for \$100,000, made in the Army bill originally. That was made for investigations and experiments in aid of air navigation and the future needs of aeronautics justifies the continuation of that. Aviation is still with us, and we must still do the work to comply with a very plain requirement of our organic act.

Mr. HUTCHINSON. I notice you are asking for \$347,000 more than you did last year.

Mr. MARVIN. That is the total aggregate increase.

Mr. HUTCHINSON. That is in the items you speak of, \$20,000—

Mr. MARVIN (interposing). For aerological work.

The CHAIRMAN. The estimate carries a number of items. Will you ascertain whether the activities are carried on by other departments and furnish the committee with the information?

Mr. MARVIN. Yes, sir.

(At the suggestion of the chairman, the following letter from the National Advisory Committee for Aeronautics on the subject of the aerological work of the Weather Bureau is submitted for the record:)

NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS,
Washington, D. C., December 18, 1919.

HON. GILBERT N. HAUGEN,

*Chairman Committee on Agriculture,
House of Representatives, Washington, D. C.*

DEAR SIR: At the regular meeting of the executive committee of the National Advisory Committee for Aeronautics, held on December 18, 1919, careful consideration was given to the increasing needs of aeronautics for improvements and extensions in the making of meteorological observations in the free air and the issuance of forecasts and warnings for the promotion of the safety of navigation of the air over the land and the oceans.

The work of this character now being done by the Weather Bureau is conducted under an appropriation of \$100,000, which was originally granted by Congress in 1917 upon the recommendation of the National Advisory Committee for Aeronautics.

The organic act defining the duties and functions of the Weather Bureau clearly requires it to render this important service. The making of local meteorological observations by the Army at certain military posts and by the Navy at base stations and aboard ships is necessary for local needs, and obviates the maintenance by the Weather Bureau of stations at those points, which would otherwise be necessary.

There is no duplication of work and expenditures whatever in these activities, the work of the Army and Navy in this connection being wholly supplementary and complementary to that of the Weather Bureau, the observations being telegraphed to the Weather Bureau daily for its use in conjunction with reports from over 200 stations of its own.

Accordingly, the executive committee strongly approves of and supports the recommendation of the Secretary of Agriculture for the increase of \$200,000 requested, viz: Item (57) of the committee print of the estimates. The executive committee further unanimously authorized its chairman to address this letter to you because it is convinced that the funds requested are now necessary to enable the Weather Bureau to meet the requirements of aviation and to safeguard the lives and property employed in the navigation of the air. The members of the National Advisory Committee for Aeronautics present at the meeting referred to are:

Dr. Joseph S. Ames, chairman.

Dr. Charles D. Walcott, Secretary Smithsonian Institution.

Prof. Charles F. Marvin, Chief United States Weather Bureau.

Maj. Gen. Charles T. Menoher, United States Army, Director of Air Service.
 Lieut. Col. B. Q. Jones, United States Army, representing Col. T. H. Bane.
 Rear Admiral D. W. Taylor, Chief Constructor, United States Navy.
 Capt. T. T. Craven, United States Navy, Director of Naval Aviation.
 Gen. Menoher and Capt. Craven have expressed their desire and willingness to present their views personally to you on this matter.

Respectfully,

NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS,
 JOSEPH S. AMES, *Chairman Executive Committee.*

Activities under lump-sum items, Weather Bureau.

Project.	Allotment, 1920.	Estimate, 1921.	Increase.
Expenses in Washington	\$109,250	\$116,190	\$6,940
Printing in Washington	12,800	15,000	2,200
Expenses outside of Washington:			
(a) Forecasts and warnings	841,620	891,120	\$49,500
(b) Agricultural meteorology	84,000	104,000	\$20,000
(c) Climatological work	356,310	357,210	\$900
(d) Seismology	2,000	2,000	
(e) Volcanology	10,000	10,000	
(f) Miscellaneous	10,300	10,300	
	1,304,230	\$1,374,630	70,400
Traveling expenses	28,000	28,200	2,200
Aerological investigations	85,040	\$285,040	200,000
Forest fire warnings (new)		15,000	15,000
Marine meteorological work (new)		50,000	50,000
Total	1,537,321	1,884,060	346,740

¹ Includes central office administrative expenses in connection with (a) vessel service, \$5,500; and (b) dry farming observation work, \$1,440.

² Forecasts and warnings, \$40,000; vessel weather service, \$9,500.

³ Fruit frost service, \$9,000; orchard spraying forecasts, \$7,000; cattle, corn, and wheat region weather service, \$4,000.

⁴ Dry farming observation work.

⁵ Includes \$1,200 transferred to statutory roll.

⁶ Includes \$4,020 transferred to statutory roll.

The CHAIRMAN. Thank you very much, Prof. Marvin.

(Thereupon the committee proceeded to take up the estimates for the Bureau of Animal Industry.)



**COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Wednesday, December 10, 1919.**

(The morning session of December 10 and most of the time of the afternoon session were given to a consideration of item No. 61, in the estimates for the Bureau of Animal Industry, for the eradication of tuberculosis of animals. The record of the hearings on this matter will be found in subsequent pages of this report.)

BUREAU OF ANIMAL INDUSTRY.

The CHAIRMAN. We will be pleased to hear from you, Dr. Mohler.

**STATEMENT OF DR. JOHN R. MOHLER, CHIEF OF THE BUREAU OF
ANIMAL INDUSTRY, DEPARTMENT OF AGRICULTURE.**

Dr. MOHLER. Mr. Chairman and gentlemen, the first item in the estimate for appropriations for the Bureau of Animal Industry will be found on page 37 of the book of estimates. This item refers to the salaries on the statutory roll. You will note that there is no actual increase in this amount, but there is an apparent increase of \$105,640, on account of the transfer of some 78 clerks, 3 skilled laborers, and 13 messengers and messenger boys from the lump sums over to this statutory roll.

Mr. McLAUGHLIN of Michigan. In each case was the transfer made at the same salary?

Dr. MOHLER. In each case the transfer was made at the same salary and the lump sum decreased accordingly.

Mr. McLAUGHLIN of Michigan. Are any additional men asked for on any of these items?

Dr. MOHLER. No, sir; and no promotions.

The next item will be found on page 42, item 60:

For inspection and quarantine work, including all necessary expenses for the eradication of scabies in sheep and cattle, the inspection of Southern cattle, the supervision of the transportation of live stock and the inspection of vessels, the execution of the 28-hour law, and the inspection and quarantine of imported animals, etc.

You will note that the appropriation last year was for \$525,000, while this year we are asking for \$557,660, which is an actual increase of \$40,020, when the transfer to the statutory roll of \$7,360 is added.

There are three items which are included in this increase. The first item is for \$10,000 increase for the eradication of scabies in cattle and horses.

Mr. McLAUGHLIN of Michigan. In certain areas in the Western and Southwestern States?

Dr. MOHLER. Yes, sir.

Mr. McLAUGHLIN of Michigan. Are those largely range cattle and range horses?

Dr. MOHLER. Largely so. The principal project under this appropriation is the regular eradication work of scabies in sheep, which is carried on in cooperation with State authorities in 21 States. In addition, assistance is lent to authorities in other States upon request when circumstances warrant. New outbreaks of this disease occurred in several of the Western States in the last two years. As the war emergency rendered it inadvisable to impose severe restrictions upon the movement of sheep to feed lots for fattening and to markets, and because of the shortage of competent personnel at that time, it was found difficult to confine these outbreaks to the original areas. The disease, therefore, attained a considerable spread, especially in the larger sheep-feeding States in the Central West, through the introduction of sheep from the range States.

During the past season intensive efforts were made by the bureau and the State authorities and considerable improvement was effected. It is important, however, that the campaign be continued so that the ground gained may not again be lost.

We have kept a complete record of the number of bands of sheep that were found affected in the central, western, and extreme western States. There were in all about 2,722 bands found infested with scabies last year, involving over 2,000,000 sheep.

Mr. McLAUGHLIN of Michigan. How much money was spent on that this year, under this \$525,000 appropriation, under this subdivision A?

Dr. MOHLER. For sheep scabies \$151,378 was allotted for the current year.

Mr. McLAUGHLIN of Michigan. This year you propose to make it \$160,000, an increase of \$10,000?

Dr. MOHLER. The increase of \$10,000 is for the cattle and horse scabies work, not the sheep scabies work.

Mr. McLAUGHLIN of Michigan. For that same work last year it was \$151,000?

Dr. MOHLER. Yes, sir. That was for sheep scabies. We are not asking for any increase on that.

Mr. McLAUGHLIN of Michigan. Under this subdivision A, you are asking for an increase.

Dr. MOHLER. The \$10,000 increase requested is for the eradication of scabies in cattle and horses.

Mr. McLAUGHLIN of Michigan. How much did you have last year for that?

Dr. MOHLER. \$59,500.

Mr. McLAUGHLIN of Michigan. That is what I wanted to get at, the amount you had for that last year.

Dr. MOHLER. The cooperative work looking to the eradication of scabies in cattle and horses is regularly carried on in 13 States. During the past two years there has been a considerable spread of cattle scabies infection in the western States. This was largely due to extensive forced movement of cattle from drought-stricken areas, dur-

ing two successive severe droughts in the Southwest and one in the Northwest. These droughts occurred in regions in which the infection exists to the largest extent—that is, Texas, eastern New Mexico, Montana, and northern Wyoming.

Cattle shipped from these areas were not in condition to be dipped nor would the pressing nature of the emergency permit the delays incident to the application of all preventive sanitary measures. In fact, they could not get enough water to drink, let alone to dip them in, on account of the severe droughts.

Mr. McLAUGHLIN of Michigan. Last year the work seems to have gotten away from you, on account of the emergency.

Dr. MOHLER. Yes, sir; there was a considerable spread.

Mr. McLAUGHLIN of Michigan. In previous years were you making satisfactory progress?

Dr. MOHLER. Yes, sir. As I stated last year, the territory quarantined for cattle scabies was released, but this year we found these numerous outbreaks in different herds of cattle, and we have called upon the States to put these herds under local quarantine until they could be dipped.

Mr. McLAUGHLIN of Michigan. Is that liable to recur, or is it something that you can prevent or eradicate?

Dr. MOHLER. We can control it very readily when we have the proper facilities. Most of this cattle scabies was brought from New Mexico and Texas, and from the Northwest. As I said, we realized that the owners did not have enough water for the cattle to drink, let alone to dip them in the dipping vat.

Notwithstanding that we have had the setback I referred to, there were only 1,431 herds that were found infested, containing about 205,000 cattle.

As you know, in the case of sheep scabies, some of the infested western range sheep came up from New Mexico into your State of Michigan and spread infection in about 54 bands in Michigan.

Mr. McLAUGHLIN of Michigan. Yes, we thought we could increase the food supply by bringing in some sheep and feeding them on some vacant lands, and they brought in some disease.

Dr. MOHLER. Yes, sir; that is right.

The next item is a \$25,000 increase, in connection with the supervision of the interstate transportation of live stock. The present allotment this year is \$150,000, and if the \$25,000 become available, it will bring the total up to \$175,000. Recent years have witnessed great increases in the amount of work required in supervising the interstate transportation of live stock. Regular public stockyards inspection and supervision are conducted at 42 live-stock markets, and in addition, work is performed as occasion may require, in 35 or more other cities. These points are scattered throughout the entire country. The duties in connection with public stockyards inspection have been broadened and greatly increased. Receipts of live stock at the central markets have been mounting, and the spread of sheep and cattle scabies infection, as already indicated, has made it necessary to exercise the greatest vigilance.

The records show that during the fiscal year 1918, 17,019,386 sheep were inspected at public stockyards, while during the fiscal year

1919, 20,516,548 were inspected, and during the first four months of the current year 11,250,764 head of sheep were so inspected.

Smaller but consistent increases are shown by the records covering inspections of cattle.

Due to the spread of scabies infection to the sheep-feeding States, the authorities of several of them have promulgated regulations requiring the dipping, under Federal supervision, of all feeder sheep moving from public stockyards into their respective States. This has increased bureau work at the public markets tremendously, as is shown by the fact that during the fiscal year 1919, 884,294 sheep were dipped under supervision, while during the first one-third of the current year, 2,277,137 head were so dipped.

The assistance of bureau employees at public markets is also requested by the State authorities in the handling of numerous other details of the traffic in live stock from such markets into the various States.

Another item in which there has been a very marked increase in the volume of work performed is that of supervising the immunization of swine at public stockyards for movement therefrom for purposes other than slaughter. The number of hogs immunized under Federal supervision has more than doubled each year during the past three years. For instance, in 1917 we supervised the immunization of only 94,720 hogs, while in 1918 there were 254,731, and in 1919, 614,673 hogs immunized at public stockyards, all of which meant considerably more work.

This work is a very important item in the greater production of pork, as the animals immunized ordinarily average about from 100 to 110 pounds in weight, and after fattening in the country are returned to the markets at about 250 pounds average weight. If this Federal supervision were not maintained the animals now being immunized for shipment to the country would either have to be sold for slaughter without fattening or, if their distribution were permitted, would spread swine diseases all over the country with resulting tremendous financial losses caused by such diseases.

Swine immunization is work that requires the very closest supervision, because of its technical character and because large quantities of potentially dangerous products are handled. It therefore adds greatly to the cost of supervision over the interstate transportation of live stock. Following its policy of cooperating with State authorities to the fullest possible extent, the bureau also supervises the immunizing of swine for intrastate movement when it is requested by the State authorities.

In addition to the above factors there have been salary increases to employees in order to enable them to meet to some extent the advanced cost of living. This has been done especially with lay inspectors, whose salaries in former years were very low, and a considerable number of whom are assigned to duties at public stockyards.

The next item is paragraph C, which requires the appropriation of \$3,020 more for the supervision of the importation of animal by-products, including hides, wool, forage, etc.

The CHAIRMAN. This is for the inspection of the importation of hides?

Dr. MOHLER. The importation of hides; yes, sir. The work under this project is conducted in accordance with joint regulations of the United States Treasury Department and Department of Agriculture, which confer upon this bureau the authority and responsibility of supervising the sanitary handling and disinfection of hides, skins, wool, etc., after arrival in this country whenever such materials come forward from a foreign country without certificates showing freedom from the infection of certain diseases.

The United States has become one of the great markets for foreign hides, skins, wool, and other animal by-products, and with foot-and-mouth disease and rinderpest and anthrax prevalent in many of the countries supplying materials, it seems even more essential than ever that a careful supervision be maintained over their importation.

The present allotment of funds for this work is proving inadequate and will not enable the bureau to continue efficient control over shipments of this character. A large percentage of these imports are entered at the port of New York and from our records it is possible to show the increased volume of unrestricted hides, skins, and wool constituting such shipments handled by the bureau during July, August, and September, 1919, as compared with the same period of 1918. It may be a matter of interest to know that for those three months in 1918 there were 33,394 hides imported, while in July, August, and September of 1919 there were 1,436,000 hides imported, an increase of over a million hides.

There were 2,170,000 skins imported in those three months in 1918, while for the first three months of the fiscal year 1919 there were 8,400,000 skins, an increase during those three months of over 6,000,000 skins imported into the country. The same is true with bales of wool.

The CHAIRMAN. How do you account for the large increase in the importation of hides and skins?

Dr. MOHLER. The great demand for the raw materials to be made up into manufactured goods by our textile workers in the United States.

The CHAIRMAN. Is that permanent, or just to meet the war emergency?

Dr. MOHLER. I am afraid it will not be permanent, because Germany before the war imported more skins and hides than we did, and I am afraid that we will lose a great deal of that business as soon as the textile workers of Germany get back to their industry.

The CHAIRMAN. The hides and skins are imported and manufactured into finished articles?

Dr. MOHLER. Yes, sir. The same thing is true as to bales of wool. There were 1,632 bales of wool imported in 1918 for those three months, and for the first three months of this fiscal year there were 3,275 bales imported, an increase of 1,643 bales of wool.

Mr. RUBEY. That increase in the importation of hides, I suppose, accounts for the price of shoes going up?

Dr. MOHLER. I do not know. It seems paradoxical, and it is indeed pretty difficult to explain why the price of shoes have gone up so tremendously.

The last item in that appropriation is \$2,000 for the inspecting and testing of animals for export. The expense in connection with the exportation of live stock has been greatly increased, due in part to the shipment of cattle to France and Belgium for restocking the devastated areas of those countries. There were included in these shipments in the four months, July to October, 1919, 10,492 dairy and breeding cattle gathered from many different States and forwarded to Newport News for embarkation. All of these required bureau inspection and tuberculin testing.

Mr. McLAUGHLIN of Michigan. I thought you were going to do that under the previous item.

Dr. MOHLER. Which item?

Mr. McLAUGHLIN of Michigan. What the gentleman spoke about when the tuberculosis item was under discussion. One of the gentlemen said that he went down to South America and worked up a big foreign trade for cattle and was talking about inspection for tuberculosis in animals that were to be shipped abroad.

Dr. MOHLER. That item you refer to is the \$1,500,000 for the eradication of tuberculosis. This export work does not help to eradicate tuberculosis in this country by the accredited herd plan. It merely helps to build up an export trade. We have specific authority for fostering an export business in live stock and their products.

The CHAIRMAN. How much was appropriated for this last year?

Dr. MOHLER. \$7,000.

Mr. LEE. What type of cattle are we exporting to France?

Dr. MOHLER. Seventy-five per cent were Holstein grades. The remaining 25 per cent were high-grade cattle, mostly of the dual purpose type. The cows were not pure bred but all the bulls were pure-bred Holsteins. Taken as a whole they were a high-grade type of dairy stock.

The CHAIRMAN. The export business is increasing?

Dr. MOHLER. Very much so.

The CHAIRMAN. I take it that the export trade is more or less temporary.

Dr. MOHLER. Yes; but I saw while I was in Chicago last week an order for over 800 dairy cows to go to Mexico. Cuba also is buying a great many dairy cattle, and, as Mr. Harding said this morning, the increased demand from South American countries has been enormous, not only for cattle but also for hogs. The present allotment of funds for this work is proving inadequate and will not enable the bureau to continue efficient control over shipments of this character.

The exportations of sheep to Canada has likewise been unusually heavy. Thus, as compared with the entire year ending June 30, 1919, during which 5,163 sheep were exported, 10,938 sheep were exported in the first four months of the present fiscal year.

Mr. McLAUGHLIN of Michigan. Does Canada accept any inspection by State authority?

Dr. MOHLER. No, sir; she does not.

Mr. McLAUGHLIN of Michigan. Why?

Dr. MOHLER. It is pretty difficult to give the reason for the other person, but I imagine they have found that these health certificates, especially the tuberculin test charts that they have accepted in the past, have not been satisfactory; so they require a certificate from a Federal inspector.

Mr. McLAUGHLIN of Michigan. If the Government did not do it, what would ultimately be the result? The States that are not carrying on a proper inspection would come to find it necessary, would they not? They would be compelled to encourage a proper system of inspection, to carry it on, or their people would lose the trade?

Dr. MOHLER. I think what would happen, Mr. McLaughlin, is that if the bureau did not make the inspections of cattle, hogs, and sheep the Canadians would not get anything of that character from the United States. I talked with the veterinary director general last week in Chicago, at the International Live Stock Show, about accepting the States' tuberculin certificates from the State men, and he told me very frankly that he was not in a position to accept those certificates at this time. He is, however, in position to accept cattle from our accredited herds without any further restriction, and to allow them to come into Canada on an accredited herd certificate; but further than that he would not go at this time. That is the position you will find the Canadian authorities have taken with reference to the various certificates from State officials for cattle, sheep, and hogs.

Mr. McLAUGHLIN of Michigan. I have no doubt that is their position now; but if the States learned that their people could not do business with Canada, pretty soon they would come to the conclusion that it would be better for them to establish inspection services and do it right.

Dr. MOHLER. Yes; I agree with you.

The CHAIRMAN. According to your table, you employed 265 in 1919, paying them \$464,000. For 1921 you estimate for 251, with an expenditure of \$557,660.

Dr. MOHLER. On what page is that, Mr. Chairman?

The CHAIRMAN. The table is on page 43.

Dr. MOHLER. What is your question?

The CHAIRMAN. You are asking for fewer men and more money?

Dr. MOHLER. Yes, sir.

The CHAIRMAN. That is explained, I take it, by the fact that a number of them were employed part time or temporary?

Dr. MOHLER. Yes, sir; and you also understand that the amount under the column for 1919 is the actual expenditure that has been paid, while the amount for 1921 is purely a pro forma estimate. That is the best approximation that we can give you so far in advance, but you will notice that 38 men who in 1919 were veterinary inspectors at \$1,800 were promoted, so that in 1921 they will get \$1,920. There is the same number of men, but they have been increased \$4,560 in salaries. The same thing obtains right through the list, which explains why a smaller number of men may receive a larger total in salaries.

The CHAIRMAN. Are your salaries in general satisfactory?

Dr. MOHLER. I would not say they were satisfactory, but they are much better than they were this time last year. The morale of the force has improved 50 per cent; so much so that a number of men who resigned before the 1st of July have returned to the bureau service since the salaries have been increased. However, the entire bureau force is expecting more adequate adjustment of their salaries as a result of the labors of the Congressional Reclassification Commission, and therefore I shall not discuss this subject now.



The CHAIRMAN. What would you say about including on the statutory roll a number of these new places?

Dr. MOHLER. I am very strongly opposed to——

The CHAIRMAN. There is much opposition to the lump sum appropriations in the House. It is contended that they should be placed on the statutory roll so that the House may know exactly the number to be employed.

Of course, you give an estimate of the number here, but that is not definite nor entirely satisfactory to the House.

Dr. MOHLER. Personally, I am very strongly opposed to putting these scientists, laboratory workers, and inspectors on the statutory roll. The present plan of having them on lump-sum rolls makes the service a very flexible organization. As an illustration, if, like at present, we are spending pro rata more money than is available for tuberculosis eradication, instead of laying off or dismissing 100 men, we can bring them over to our meat inspection service. The winter season is starting, and the amount of meat inspection is greatly increasing. There is more live stock being brought for slaughter at this season of the year than at any other time. We can bring those men in and put them into meat inspection work, and in the spring we can send them out when hog cholera is starting to appear in the country. When you have them on the statutory rolls, you can not make that transfer without causing a great deal of hardship.

The CHAIRMAN. In what way?

Dr. MOHLER. If we had a man who was drawing a certain salary on a statutory roll in tuberculosis eradication, and we found that our money was short, we might have to transfer him to a vacancy in the meat inspection work which might be of so subordinate a character that it would be worth \$300 or \$400 less than he received. Or he may be working alongside of a person who would be getting considerably more money than he. There is no way of controlling these things on the statutory roll, as is evidenced by the repeated experiences with the clerical statutory roll, where two clerks doing the same kind of work may get a difference of \$300 in salaries.

The CHAIRMAN. You transfer them back and forth?

Dr. MOHLER. We make the force as flexible as we can. We do not want an expert on tuberculosis who knows nothing about ticks, or an expert on meat inspection who knows nothing about hog cholera. We try to keep all our inspectors fully informed about every line of work in which we are engaged.

The CHAIRMAN. You transfer them at the same salary?

Dr. MOHLER. Yes, sir; we do.

The CHAIRMAN. Why would it not be just as well to put them on the statutory roll at once?

Dr. MOHLER. If we had the statutory roll under tuberculosis eradication, and had 80 men, 30 of whom were getting \$2,200 and 50 \$1,800, when we came to transfer them to other lines of work they would naturally be placed in work vacancies where they are needed irrespective of the amounts they may be drawing on the proposed statutory roll. At the present time we can adjust things without fear or favor. If there is a vacancy we can promote the most desirable man. This statutory roll proposition, so far as I can see, is a very serious thing to a wide-awake, outstanding young man. He has

to wait for the man in front of him either to resign or die. There is no vacancy that he can fit into because they are all occupied. Furthermore, new places on the statutory roll must be estimated for by the bureau practically a year in advance, and such places must be approved by the Secretary, your committee, and Congress, and may always be stricken out by a simple point of order from the floor.

Mr. McLAUGHLIN of Michigan. Under item 60 there are a number of different kinds of work, for which a lump sum of \$557,000 is provided.

Dr. MOHLER. Yes, sir.

Mr. McLAUGHLIN of Michigan. We are often asked on the floor how much money is being used for a particular piece of work, and how much for another piece of work, and how much for another piece of work, and sometimes we are unable to answer. I think, as we go along, where an item contains a number of different kinds of work, you ought to help us by stating how much money you spend for each particular kind of work.

Dr. MOHLER. I have that right here and would be very glad to tell you.

The CHAIRMAN. The note indicates the number to a certain extent but when grouped it is difficult to ascertain the exact number of each.

Dr. MOHLER. The present appropriations covered in this item are as follows, for sheep scabies, \$151,378.

The CHAIRMAN. That is for the current year?

Dr. MOHLER. Yes, sir; that is for the current year. We have not asked for an increase in that item. For cattle and horse scabies, \$59,500, and we are asking for an increase of \$10,000. That makes \$69,500. Interstate transportation, \$150,000, and we are asking for an increase of \$25,000. For the 28-hour law, we have \$27,840, and we are asking for no increase there. For the mallein testing of animals for interstate shipment we have \$5,000; for the importation of animals, \$64,980; for quarantine inspection, \$12,000; for the importation of by-products, \$16,980, and we are asking for an increase of \$3,020. For testing animals for export we have \$7,000, and we are asking for an increase of \$2,000 there. For the inspection of vessels we have \$2,500. For the laboratory work, including the dipping outfits for scabies and the work of manufacturing mallein and the preparation of dips and disinfectants for the disinfecting of hides, we have \$15,000.

Mr. McLAUGHLIN of Michigan. You spoke of some by-products. What are they?

Dr. MOHLER. Animal by-products. That would be knolls of wool, bones, hoofs, horns, hair, and different products of that character.

The CHAIRMAN. That is \$15,000?

Dr. MOHLER. No, sir; \$16,980. That is the item for importing by-products where we are asking for \$3,020 in addition.

The CHAIRMAN. Is that for the current year or 1921?

Dr. MOHLER. \$16,980 is for the current year, and we are asking for \$3,020 in addition for next year.

The CHAIRMAN. \$16,980 for the current?

Dr. MOHLER. Yes, sir; \$16,980.

Mr. McLAUGHLIN of Michigan. You have to inspect those by-products to see that they do not carry any disease?

Dr. MOHLER. Yes, sir; and if they are not accompanied by a certificate, they are all disinfected so that we shall take no chances of bringing in foot-and-mouth disease, rinderpest, etc.

Mr. McLAUGHLIN of Michigan. Have you particular places where they are permitted to be brought into the country?

Dr. MOHLER. Yes, sir; principally New York, and also Philadelphia, Boston, and Baltimore. They are all coming in under inspection. Also camel's hair, hog bristles, and things of that kind would all be included in the by-products.

Mr. McLAUGHLIN of Michigan. How about coming across the line from Canada by rail, or from Mexico?

Dr. MOHLER. We have the customhouse officials of the Treasury Department working in cooperation with us, and they notify us whenever anything is coming through. They very frequently are allowed to enter the country, in bond, but they have to be disinfected at destination, if necessary.

Mr. McLAUGHLIN of Michigan. When the Treasury officials notify you, do you have a man to go in answer to that call and make an inspection?

Dr. MOHLER. Yes, sir; we have men scattered along the Canadian border at different points, especially at railroad centers.

The CHAIRMAN. Why not put all of the veterinary inspectors in one group at a certain salary and then apportion them as you think best?

Dr. MOHLER. It would not work out well, if you are going to confine this number of veterinarians each at so many dollars per annum on the statutory-roll basis, for the reasons that I have already mentioned. It is submitted that in a work so extensive and complicated as the meat-inspection service and the great eradivative measures handled by this bureau, including foot-and-mouth disease, if necessary, it is absolutely impossible to predict a year ahead how many employees will be required, with their salaries.

The transfer of technical and scientific employees to the statutory roll, such as is now provided for the clerical force of the department, would, in my opinion, be a calamity. It would not be a calamity to scientific workers alone, but to the Government and people of the country as well. It is a well known fact that the adoption of the statutory roll for clerical employees, making it necessary for the clerks to depend upon the resignation or death in the service of employees to secure promotion, has in no way tended to increase the efficiency of the clerical force. It has made promotion so slow and opportunity for advancement so remote that many of the best employees have resigned and others who are of high natural ability have lost interest and refuse further to exert their best efforts. Such action would undoubtedly cause the best men in the scientific and technical branches to leave the Government service as soon as the opportunity offered.

Promotion at present is extremely slow. The salaries of Government workers are now below the scale paid by State institutions and far below that paid by commercial institutions. Not only would capable employees gradually leave the service, but the service would not attract men from the outside. It is difficult enough at the present time to obtain satisfactory scientific employees, without increasing this difficulty.

I believe that, if possible, the salary system for scientific employees should be made more elastic than it is at present in order that those who prove their efficiency by the results accomplished may be rewarded promptly. This would, in my opinion, give a tremendous stimulus to the research activities of the Department of Agriculture.

The appropriations for the salaries of scientific and technical employees, which at the present time can be used as the work requires, could not be economically administered under a statutory system, and there would be a tendency to maintain continuously a larger staff than necessary in order to be able to meet emergencies. It is also my belief that fewer applications will be received for appointment in the bureau service if this class of employees is placed upon the statutory roll. I might add that the turnover in our bureau in the last 12 months has been almost 40 per cent. We have lost 1,956 employees in the last fiscal year.

Mr. RUBEY. How many men, approximately, did you dismiss during the year?

Dr. MOHLER. Eight.

Mr. RUBEY. For inefficiency?

Dr. MOHLER. For various reasons.

Mr. HARRISON. That does not, of course, include reductions in force.

Mr. RUBEY. I am just asking for the number dismissed. Do you have difficulty in dismissing a man from your service who is just simply lagging along, doing what he is required to do, but doing it about as inefficiently as he can and at the same time keep his place? Do you have any trouble getting rid of that sort of fellow?

Dr. MOHLER. It is a very difficult thing to get rid of a man who is just about on the border line.

Mr. RUBEY. Under the civil-service regulations you can not dismiss a man without charges being preferred against him, can you?

Dr. MOHLER. No, sir; we can not.

Mr. HARRISON. The procedure is prescribed by law. We are compelled to prefer charges against a civil-service employee before he can be dismissed and frequently it is exceedingly difficult to cite specific instances wherein he has been inefficient. The natural result is that many people stay in the Government service who would not be retained by a business organization.

Mr. RUBEY. I just wanted to call that matter up.

Mr. HARRISON. I think it is safe to say that it frequently takes from a month to two months to dismiss an employee from the service.

Mr. McLAUGHLIN of Michigan. Before whom do you have to appear and make your charge against a man?

Mr. HARRISON. We do not have to appear before anybody.

Mr. McLAUGHLIN of Michigan. You spoke about the necessity of making a showing. To whom do you make it?

Mr. CANDLER. Do you have to take it up with the Civil Service Commission?

Mr. HARRISON. We do not have to take it up with the Civil Service Commission. We send the record to them after we have acted.

Mr. McLAUGHLIN of Michigan. Does the Civil Service Commission pass on your complaints against your own employees?

Mr. HARRISON. No; they do not pass on our complaints; we merely file with them the papers showing our action. Here is the difficulty.

We are compelled to cite specific instances of inefficiency, assuming that is the charge, and that is exceedingly difficult in many cases. We may know that the employee is generally lazy, or a number of relatively minor things may have occurred which indicate that he is generally inefficient. You can appreciate how cases of this sort will arise in a large organization, yet when it comes to preferring specific charges, indicating specific instances of inefficiency, it is an exceedingly difficult thing. All cases involving disciplinary action other than a reprimand are considered in the Secretary's office, and, if the charges are not sustained, the employee, of course, is not dismissed.

Mr. RUBEY. If the man himself is not satisfied he can go to the Civil Service Commission and take it up with them and ask them why he has been dismissed, can he not?

Mr. HARRISON. Yes; he may take it up with the Civil Service Commission, and at times the Civil Service Commission has communicated with us about particular cases, but, so far as I know, it has never objected to our action.

Mr. CANDLER. If the Civil Service Commission does not approve your action in discharging a man, can they reinstate him?

Mr. HARRISON. No; they have no power, as I understand it, to revise the action of the department.

The CHAIRMAN. Why not put all of the veterinarians in one group?

Mr. HARRISON. One of the greatest difficulties is that we are compelled to make these estimates so far in advance. We can not even guess with any degree of accuracy what the conditions are likely to be next year. It seems to me that some latitude must be left to the department in the handling of its personnel.

The CHAIRMAN. You have a veterinarian listed on several pages. Why not put them all under one group?

Dr. MOHLER. That is according to the procedure adopted by the department years ago and is, I believe, in accordance with law or at least with the requirements of the Littlefield committee.

The CHAIRMAN. We write our own bill. When we appropriate a lump sum we do not know how the salaries are apportioned. You make estimates and, of course, we know that you expect to carry them out in good faith and that these are the salaries that you expect to pay. It amounts to the same thing, but a statutory roll is a more comprehensive and intelligent way of doing it.

Dr. MOHLER. I object to putting them on the statutory roll and confining a certain salary to a certain position or to a certain man. I have been told that there were statutory positions established some years ago for scientific workers, and it was abandoned because it did not function satisfactorily.

Mr. HARRISON. Some of the States have tried it but it has been a miserable failure.

Dr. MOHLER. I know that is true.

The CHAIRMAN. This is practically the same. You are indicating to Congress just what you expect to pay in salaries. You start on page 43 with one veterinary inspector at \$3,500, one at \$3,000, and so on. That is what you state that you expect to pay. Why not write it in the law?

Dr. MOHLER. At the present time the Secretary can reduce that salary or raise it, but if you state in the law that the Chief of the

Quarantine Division must get \$3,500, it takes it out of the discretionary power of the Secretary entirely. This chief might leave and the next man might not be worth \$3,500. But you must fill it or have the money lapse into the Treasury.

The CHAIRMAN. We could specify out of a \$100,000 item intended for salaries that \$75,000 should be paid at certain rates on the statutory roll, and carry \$25,000 in a lump sum so as to give you some discretion and leave it flexible. It seems to me that the lump-sum appropriations are unjustifiable, and an unbusinesslike way of doing it. Congress has been criticized for it. I believe that this committee has reported bills carrying a larger statutory roll than practically all the other committees together, but I believe it can still be improved upon. If Congress is to determine what salaries are to be paid or are to have anything to do with it, it should be done in the act.

Dr. MOHLER. Congress has already stated that the Secretary will be permitted to pay \$4,500 as a maximum salary for scientific workers, and he has not abused that privilege. I think it is much better to leave these lump-sum salaries to his discretion rather than to make it compulsory, for instance, that the Chief of the Quarantine Division, or the assistant chief, be given just that amount and nothing more or nothing less. That is where the hardships of the statutory roll, to my mind, come in; it is so absolutely inflexible.

The CHAIRMAN. If these tables in the estimates are not to be adhered to they do not amount to anything. We, of course, expect you to make certain changes. We know that you carry out your estimates in good faith. When we get on the floor we are criticized for lump-sum appropriations. It is stated that there is nothing to indicate what they will be used for. The only way of answering the criticism is to call attention to the estimates and the plans indicated therein.

Mr. HARRISON. The department, of course, can not say absolutely what it will be necessary to do 12 months from now.

The CHAIRMAN. I do not ask to state exactly, but to come somewhere near it.

Mr. HARRISON. This is our best estimate. This is what we intend to do so far as we can determine on the basis of present conditions.

The CHAIRMAN. It should be something more than an intention, it should be written in the law.

Mr. HARRISON. There are many arguments in favor of lump funds, especially in connection with the prosecution of scientific and technical work. The matter was thoroughly discussed and a statement prepared by a committee working for the Joint Commission on Reclassification and printed in the Star of November 9. The committee has indicated some very specific, and I think sound, objections to statutory rolls, and I would like to read the statement to the committee.

It is a long statement, but the matter we are discussing is one of the most fundamental problems in the Government service to-day—the question whether the hands of administrative officials are to be further tied by statutory rolls or whether they are to be given some discretion in the administration of the work authorized by Congress.

The CHAIRMAN. I do not want to tie their hands, nor do I want to leave it entirely to them as at present under the lump-sum appropriations.

Mr. McLAUGHLIN of Michigan. If we could get rid of the responsibility and give it to you, I would be very glad to do it.

Mr. HARRISON. If Congress authorizes the expenditure of a certain amount of money for a certain kind of work, it is then up to the executive officers, the men who are doing the work, the men who are actually responsible for the results secured, to carry out the purpose of Congress.

The CHAIRMAN. But it is the duty of Congress to know how they are going to spend it.

Mr. HARRISON. Next year we will, of course, report the results to you, and, if Congress does not think that the expenditures we have made are justified, then it should cut the appropriation. I think anyone in the Government service holding a responsible position will say that the one thing that would seriously disrupt the Government service would be to put the scientific and technical workers on the statutory roll.

The absolute hopelessness that prevails among employees on the statutory rolls, knowing as they do that they may stay there for years without material advancement, that their ability, ambition, and energy will not be adequately recognized, is very demoralizing. We have come here year after year with recommendations for promotions on the statutory rolls, but they rarely ever go through. You gentlemen know that we proposed a readjustment in the lower grades on the statutory rolls last year, but no action was taken. There have been very few changes on these rolls in the last five or six years.

The CHAIRMAN. Your statement would be an argument in favor of the statutory roll. I am perfectly willing to accept the statement and the judgment of the department. I do not believe anybody wants to cripple the department. We do not want to cut salaries. We want to give all they are entitled to; but I do like to do business in a businesslike way, and the ordinary business man would not continue over the new year if he did not have some system of doing business in a regular businesslike way. The only way to do business is to know exactly what your money is to be expended for, and it is the duty and the function of Congress to absolutely determine this. Then it is left to the department to expend the money according to the direction of Congress.

Mr. HARRISON. Is there a business organization in the country, operating on a large scale, that tells its general manager just what he may pay in salaries a year from now? It is not my understanding that the board of directors of a business organization limits its general manager in the handling and pay of its personnel in the manner that the executive departments are limited. It might be said that Congress is the board of directors of the Government service and that the head of each department is a general manager. The budget of a business concern is usually fixed a month or two, perhaps less, in advance of its fiscal year, and even then much discretion is given to the general manager in connection with the pay of the personnel. Furthermore, a meeting of the board of directors can be called at almost any time to deal with any unusual situation that may develop, so that, in any event, a fixed salary roll in business would not present the same difficulties that exist in the Government service.

The CHAIRMAN. The general manager submits his plans to the directors, and the directors determine it.

Mr. HARRISON. Certainly.

The CHAIRMAN. It should be so with the Government, too, as with any well organized business institution.

Mr. LEE. I do not believe there is any man in the world who runs his business a year in advance.

The CHAIRMAN. Let us leave some latitude, of course. If we are to accept the statements of the department without writing it in the law, we will have to say to Congress, "Here is what the department expects to do," as we have done from time to time, and for which we have so often been criticized.

Dr. MOHLER. It is just a matter of integrity. That is the point I want to emphasize. There certainly has been no abuse in any bureau of the Department of Agriculture of this lump-sum roll, and I am sure you will find it would be the worst thing that could happen in our department, particularly to our best men, if they felt that they were going to be shackled by the statutory chain of a certain salary for a certain job. Instead of losing 1,900 employees we would lose practically all of our best men, and we are losing them fast enough under present conditions.

We know the psychology of these men, and we know the psychology of our clerks under the statutory roll. We run our offices with a lower average grade of clerks as compared with what we would have if a lump sum were available to pay them from. The same thing would obtain if we had to put our scientists on the statutory roll.

Mr. McLAUGHLIN of Michigan. There is an appropriation of \$557,000 and you might expend all that for salaries if you wanted to.

Dr. MOHLER. No; that is unthinkable. That is what you gentlemen seem to understand generally. We could not put all of that in salaries. We have a certain amount of work to accomplish, and if we paid these men \$557,000 in salaries, when we came here next year we could not show you any results. I keep coming here every year and keep showing you that we are protecting the live-stock interests of the country and giving you results. We could not possibly do that if we were only paying salaries.

Mr. McLAUGHLIN of Michigan. The statement that was made a few minutes ago was that it was the duty of Congress to make appropriations and put them in the hands of the executive departments to do with them just as they please.

Mr. HARRISON. I do not think I made that statement.

Mr. McLAUGHLIN of Michigan. I do not believe that is the limit of the responsibility of Congress. I do not like to assume responsibility I do not have, but I feel some measure of responsibility as to how this money is spent.

Mr. HARRISON. I did not mean to suggest that Congress should not put any limitation on appropriations that may seem to it to be wise, but I was merely trying to point out, Mr. McLaughlin, that some of the limitations handicap the executive officers, and to express the view that it is necessary for Congress to trust such officers to do their duty. These men feel their responsibilities and will, of course, endeavor to carry out the wishes of Congress as best they can. This

tuberculosis matter is a case in point. The department urged Congress not to place any limitation on the expenditure of the appropriation, realizing then the situation which was explained to you this morning would develop.

I was answering Mr. McLaughlin's statement, and was referring to a specific case where Congress exercised its judgment, as it had a perfect right to do, and refused to trust its executive officers. As a result important work that ought to go forward has been held up and it has been necessary to discharge a number of men. A considerable sum of money, appropriated by the Congress for the eradication of tuberculosis, can not be used for that purpose because of a limitation of the appropriation and it is going back into the Treasury. Will it not be time to raise that question when there has been an abuse of the authority and of the leeway you have given us?

The CHAIRMAN. My contention is that we should do business in a business way. As a private individual, I would not expect to do business in this way. It is a question as to whether I do my duty as a Member of Congress, or turn everything over to the Executive. Of course, I have confidence in the Executive, but that is not enough.

Mr. LESHNER. To what extent would you suggest that these salaries be put on the statutory roll?

The CHAIRMAN. I would not put them all on the statutory roll, but a large number of them.

Mr. LESHNER. Put them all on the statutory roll?

The CHAIRMAN. No. Not all of them. Here is an item of \$527,000, with not one salary on the statutory roll. I can not conceive of any business man saying that that is a businesslike way of doing business.

Mr. HARRISON. It is not my understanding that any business organization has an inflexible roll which can be changed only once a year.

Mr. RUBEN. Mr. Chairman, I want to study this question and I want to get all the information I can on it. Mr. Harrison a moment ago called attention to a statement prepared by the commission on the reclassification of salaries, and I believe it would be a good idea to print it in the record so we can look it over carefully.

The CHAIRMAN. I have no objection to that.

Mr. McLAUGHLIN of Michigan. By whom was it prepared?

Mr. HARRISON. It was prepared by one of the advisory committees, Mr. McLaughlin, appointed by the Joint Congressional Commission on Reclassification, a committee consisting of Mr. Manning, Chief of the Bureau of Mines, Mr. Myers, chief clerk of the Treasury Department, Mr. Ryan, of the Bureau of Education, and Dr. E. B. Rosa, of the Bureau of Standards. They set out under various headings the disadvantages of the statutory roll. The first heading, for instance, is the "Difficulty of foretelling statutory positions needed," under which the committee indicates very clearly the impossibility of any satisfactory estimate, so far in advance, of the positions required. We can not say now what salaries it will be necessary to pay next July. Congress authorizes a new line of work and we go ahead and organize it, securing the best available men at salaries they are willing to take. We can not tell in advance what we will have to pay them. Other headings in the statement are "Inequalities and

injustices under statutory salaries" and "Unused statutory vacancies." Year after year we have many low-salaried statutory places which we are unable to fill and the money goes back into the Treasury. The committee cites many other disadvantages of statutory rolls, but I will not attempt to enumerate them.

Mr. RUBEN. May that go into the record?

The CHAIRMAN. Yes; I have no objection.

(The matter referred to follows:)

LUMP-SUM WAGE APPROPRIATIONS ARE FAVORED.—107,000 UNITED STATES EMPLOYEES AFFECTED BY SUBCOMMITTEE'S PROPOSAL.—STATUTORY SCHEDULE MEETS OPPOSITION.—THOROUGH RECLASSIFICATION OF SERVICE PROVIDES FOR ADEQUATE PROMOTIONS.

Lump-sum appropriations for salaries as opposed to statutory fixing of individual wages for the 107,000 Federal workers in the National Capital was recommended to the Joint Congressional Commission on Reclassification of Salaries in the District to-day by a special subcommittee composed of Van. H. Manning, Chief of the Bureau of Mines, chairman; Paul Myers, chief clerk of the Treasury; W. Carson Ryan, Jr., Bureau of Education, and Dr. E. B. Rosa, of the Bureau of Standards.

"The object of Congress in establishing statutory positions is to retain control of the salary schedules of the Government service," declared the summary of the elaborate report. "The object of the administrators in advocating lump-sum appropriations is to secure sufficient freedom to do the Government work efficiently.

OBJECTS NOT TO CONFLICT.

"The two objects are not necessarily in conflict," continued the summary. "A thorough reclassification of the service, with adequate provision for promotion and a strict supervision by a central agency, will accomplish both objects.

"(b) The commission, by the very fact of making a complete classification of all positions, will answer the demand of Congress by assigning definite salary scales for all positions, which will be approved by Congress. The question of lump sum or statutory will, therefore, be settled by incorporating the best features of each into the new system.

"(c) The central agency that will be set up to carry on the classification—supposedly the Civil Service Commission—should have representatives in every department to cooperate with the department heads in personnel matters and to check up the whole system for the Government. Full reports should be made to Congress annually, showing the working of the system and suggesting any necessary amendments of it."

The reclassification commission has taken no action as yet upon the recommendations. The full report, with the exception of the summary already given, follows:

"1. STATUTORY SALARIES.

"Statutory positions are fixed by Congress for each bureau or administrative unit in the service in the annual appropriation bills, the number of positions of each kind and the salaries of each being specified in detail. These positions are of two kinds, (a) where the salaries and titles have been standardized, and (b) where the salaries and titles are recommended by the bureau chief or head of the particular branch of the service concerned. No change can be made in the title or salary of any position after it is granted except by Congress, and this is done only in the annual appropriation bills. Moreover, any increase of salary is subject to a point of order in Congress, and hence even if the appropriations committee has recommended an increase in any given case it can only be granted by unanimous consent.

"This fact alone, namely, that Congress has provided no regular method of revision of salaries or making promotions in statutory positions, and can not do it if a single Member objects, is one reason for discontinuing such a system. As estimates are made out by the departments at least 9 months before the beginning of each fiscal year, it is 21 months from the time the estimate is

made until the end of the fiscal year during which the money is expended. Of course, it is impossible to foresee the requirements of a bureau's personnel or of the personnel of any particular line of work in a bureau accurately in detail a year or more in advance. No matter how carefully the work may be planned, conditions change and it is usually necessary to modify plans and make changes in personnel, sometimes very considerably, to meet changed conditions.

" 2. DIFFICULTY OF FORETELLING STATUTORY POSITIONS NEEDED.

" But even if external conditions did not change, it is impossible to foretell how work will develop and just how many men of different kinds and grades will be needed for a given investigation. Suppose, for example, an investigation is undertaken which requires physicists, chemists, mechanical engineers, statisticians, and clerks. To estimate a year in advance how many men of each kind will be needed and the salaries of each would be little better than guesswork. When the work is undertaken the men in charge of the several branches of the work develop the problem gradually, and they gather their personnel as needed and as they can. It is partly a question of what is needed to do the work as it develops and partly a question of what men can be found who are competent and available at the salaries that can be paid.

" If man who is splendidly equipped for some part of the work is found who can be had at \$4,000 a year, it is very awkward if the highest statutory salary available is \$3,000, and only statutory salaries are available. Perhaps two chemists are needed and only one has been estimated for; or perhaps two mechanical engineers were provided and it is found that one would better be an electrical engineer. In short, to be hampered and embarrassed by restrictions of this kind which do no good and make it impossible to carry out work efficiently is exceedingly undesirable.

" Under a lump-fund appropriation the bureau chief is free to employ the men most needed and to make salaries fit the men, instead of trying to fit the men to predetermined salaries. Under this plan the service of anyone may be discontinued when not required and the money used for some other position. The plans for the work may be developed gradually and the division of funds between salaries and other expenses may be determined by the needs of the work and not by a guess made a year in advance.

" 3. PROMOTIONS.

" Under a statutory-salary plan promotions are made by advancing men to vacancies at higher grades. These vacancies usually arise either by the securing of new positions at higher salaries, or by resignations. In a bureau that is growing rapidly there are apt to be many new positions, and if these are secured in the upper grades, promotions can be provided for. It is impossible, however, to foresee a year or more in advance where promotions are most needed, and it is also impossible to foresee what vacancies are going to occur by resignations. Hence it often happens that it is difficult or impossible to make the promotions that are most deserved, and one is obliged instead to make such as can be made. That is, promotions can not be made strictly on merit, but must be determined to a large extent by accident. It may happen that two men of the same salary are equally deserving of promotion, but there is only one vacancy. Perhaps the next higher vacancy is \$400 above the given salary. The just action would be to give each \$200. But that is impossible with statutory salaries, as the salaries can not be changed. One must be given \$400 and the other nothing, or else neither promoted and the position left vacant or filled by an appointee from outside the bureau.

" Such distressing situations often arise where statutory salaries prevail, but do not on a lump-sum basis. Where a bureau is growing slowly or not at all there are vacancies for promotions only as resignations occur at the top, or salaries are increased by Congress. Vacancies at the top due to death are usually too slow to provide promotion. Hence resignations must be depended upon, and these are apt to be from the men that are most useful. To lose the best in order to promote the rest is very detrimental to the service. A lump-fund plan that will permit promotion of those who deserve it most without sacrificing valuable members of the staff is extremely important.

" 4. INEQUALITIES AND INJUSTICES UNDER STATUTORY SALARIES.

"If a position has a special title and there is only one of a kind in the bureau, promotions can not be made without special action of Congress. For example, chief chemist, chief clerk, chief mechanic, chief engineer, secretary, librarian, and a great many other similar positions may occur only once in a given scientific bureau. The holders of these positions frequently go on year after year without promotion, and although they may be especially deserving. Sometimes they resign for this reason; sometimes they are transferred to other positions where they can be promoted; sometimes their salaries are raised by Congress. The latter action is relatively infrequent, however, and this partly because the bureau chiefs are often instructed not to ask for any increases in salary. Bureau chiefs should be encouraged to equalize salaries when they become unequal—to correct injustices when they occur. However, it is well known that promotions and equalization of salaries are being made for lump-sum employees, and for statutory employees where there are vacancies. Nevertheless, all departments are frequently requested to ask for no increases in statutory salaries, even to correct the most glaring cases of injustice that may arise through the inflexibility of statutory salaries. This is one of the strongest reasons for discontinuing statutory salaries.

" 5. UNUSABLE STATUTORY VACANCIES.

"At the present time there are a great many statutory positions in the Government service vacant because the salaries are so low that they can not be filled. In such cases the money can not be used for any other position or purpose but reverts to the Treasury. This puts administrative officers under pressure to fill positions as best they can, even though unsatisfactorily, rather than get nothing out of them. This is not an efficient use of the money, but may be justified as being better than leaving the position vacant and neglecting work that is calling for more help. It hurts the service to have such cases occur, and they never do occur under a lump-sum plan.

" 6. OTHER DISADVANTAGES OF STATUTORY SALARIES.

"It is inconceivable that a private corporation employing the services of scientific and technical men, and employing labor on a large scale, would operate on a statutory basis, as it promotes inefficiency and destroys the morale of the workers. If merit can not be rewarded when it is deserving, the result is loss of efficient conduct of the work. If not rewarded, the employee becomes discouraged, and if he does not leave the service, his work usually deteriorates in quality and diminishes in quantity. As the number of such discouraged employees increases from month to month, the working morale of the force is weakened and the output soon decreased. The statutory salary does not encourage initiative, enthusiasm, or ability, and it holds the employee with these qualities to the salary level of employees lacking them. In the economical conduct of some special work, it is sometimes not advisable to promote the understudy for a particular piece of work to the salary vacated by the chief of the division or section where there is a wide range in salaries. This promotion should not be made until the successor to the section chief has shown his ability. Yet under a statutory system, it would often be necessary to promote the understudy to the chief's position or leave the position vacant. Emergency work or work in an overburdened section can not be cared for, because of the special character of the work, for which men in any other section are not properly qualified; and even when so qualified, their assignment to the overburdened section will usually mean embarrassment to the work of the section from which they are taken.

" 7. FILLING POSITIONS OF SPECIAL CHARACTER.

"Probably never before has the overwhelming importance of the personal equation been so fully recognized as it is to-day. One man makes a brilliant success where another has failed totally, although having the same advantages at his disposal; another, surrounded by every advantage which could reasonably be expected, permits the decay and dissolution of a great business built

up by a predecessor under the most adverse conditions. The reason for the success on the one hand and the failure on the other is directly due to the man involved. Therefore, people universally recognize the importance of securing and retaining the services of the right man, and no commercial organization would consider depriving itself of the power to pay a larger salary than usual in order to obtain the services of the right man for a particular line of work. Therefore, if the head of a bureau is authorized to make certain investigations which required a man of unusual talent who could not be obtained for the salary fixed by law he would lose the opportunity of obtaining this man; whereas if some elasticity is provided the services of the best man could be secured.

" 8. OBJECTIONS TO LUMP FUNDS.

" Statutory salaries present so many difficulties and disadvantages that in some bureaus lump funds are in vogue much more than statutory funds, and in some almost entirely. One of the principal objections to lump funds has been that the various bureaus are enabled to fix salaries without conforming to a common scale, and considerable inequalities arise. It is true that the character and quality of the work varies in different cases; and the salary scales perhaps vary less than they appear to do. But it must be granted that there are differences for men of the same qualifications and responsibilities, and if proper coordination and standardization of positions and salaries had been carried into effect the objections to lump-sum salaries would have been less felt.

" Another objection to lump funds has been that men could be transferred to them at higher salaries than they are getting on statutory rolls. This was so strongly felt that it led to legislation forbidding this. However, we believe that difficulty arises primarily from the fact that because promotions were impossible on statutory funds it was sought to do justice to men in the only way possible. Thus the legislation resulted in either driving men out of the service or depriving them of promotions to which they were entitled. It may be in some cases that men have been promoted who did not deserve it. But that can happen under either plan.

" Certainly the advantages of a lump-sum plan are very great, and if its principal disadvantages can be eliminated statutory salaries could be largely or entirely dispensed with to the lasting benefit of the Government service.

" 9. A STANDARDIZED PERSONNEL.

" The congressional reclassification commission is engaged in classifying all Government positions in the District of Columbia and proposes to make out a system of standardized titles with the duties and qualifications for each. A range of salaries for these various positions will presumably be suggested. If Congress adopts the report and fixes the salaries, it will be setting very definite restrictions and giving very definite instructions to the bureaus in making appointments and promotions. If funds are provided to the various bureaus for their work in accordance with some kind of a budget, in which the work to be done is described and the money to be spent is estimated, together with an approximate list of positions of various grades that it is expected to fill, then the bureaus will be free to spend the money as efficiently as possible and not be tied up by fixed numbers of fixed salaries as under the present statutory system, nor left as free from restrictions as to salaries as under the present lump-fund system. The disadvantages of each plan will largely be done away with and the best features of each preserved. It will, of course, be necessary under this plan that the permanency and stability of statutory places be secured for the permanent positions in a bureau. It will also be necessary to have some sort of effective supervision of promotions, such as the Civil Service Commission gives to appointments, to see that the scheme of standardized salaries is followed, that exceptions or special cases are justified, and that the interpretations of the terms expressing the duties and qualifications of the various positions are substantially uniform in the different bureaus and departments of the Government."

" 10. PROMOTIONS UNDER THE NEW SYSTEM.

" How promotions shall be made under the new system has not yet been decided. It is very important that they be made according to merit, rapidly for those who develop rapidly, slowly for those who progress slowly. Any

system which makes it impossible to promote men and women according to merit can not be satisfactory or right. Automatic promotions which put all in one class and offer no incentive to industry and effort are of course out of the question. On the other hand, if there is no automatic promotion there should be provision for systematic revision of salaries and frequent promotions for all who deserve them. Some method of recording the quantity and quality of work done and the responsibilities carried would seem to be necessary for all grades of the service. If this can be provided and the range of salaries specified can be made adequate and sufficiently flexible in some way so that they can be maintained comparable with salaries outside the Government service, it ought to be possible to maintain a high grade of personnel and to conduct the Government efficiently on a business basis.

" 11. SUPERVISION OF THE NEW SYSTEM.

"The Civil Service Commission, if enlarged and strengthened, could effectively perform this function of supervising promotions and transfers as they now do and see that the standardized system of titles and salaries is followed. It would be desirable to have a representative of the Civil Service Commission permanently detailed to each one of the large bureaus to cooperate with the chief clerk or appointment division in matters of appointments and promotions. Other representatives of the Civil Service Commission could go about among the smaller bureaus giving assistance where needed and seeing that there is satisfactory compliance with the system established by Congress. This will give Congress more adequate control over salaries and positions than heretofore, without unduly embarrassing the bureaus in carrying on their work."

The CHAIRMAN. The function of Congress here is to determine these salaries, and unless we do that we are not performing our duty. Shall we surrender them to the Executive as we have in the past?

Mr. RUBEN. I at one time was a member of the appropriations committee of the State Senate of our State. Our committee made appropriations for every institution in the State, and we made lump-sum appropriations. We could not do anything else. We appropriated so many thousand dollars for the State University, so much for the different insane asylums, so much for the penitentiary, and so much for the different institutions throughout the State, and the State of Missouri runs its affairs in that way to-day, and gives to the people who have charge of the expenditure of that money in the institution the distribution of that money and the use of it in the way in which they think will be for the best advantage of the institution. Every institution, of course, reports to the legislature the following year how much of this money has been expended and the details, and the name of every man that has received a penny is on that list, and when they submit their estimates to the committee they set forth their estimates for every person they want, and the salary they expect to pay him, but they do not always know that they can get him for that salary, and sometimes, as has recently happened, they have had to pay him twice that much in order to retain him. The president of our university, Dr. Hill, is now on the point of going to California at a higher salary, but they will probably pay him that higher salary to keep him in the University of Missouri. If, however, we said, "You can pay Dr. Hill \$7,000," they could not pay him any more, and they would have to let him go.

Dr. MOHLER. The point I tried to cover was that there has been no abuse of this lump-sum appropriation in our department. In fact, the Secretary has given the \$4,500 maximum salary that he is permitted to give by Congress, to only a very few of our most efficient and outstanding people.

The CHAIRMAN. You are limited, of course, to \$4,500, but you can put everybody up to \$4,500?

Mr. HARRISON. The records will indicate that we have not done so.

The CHAIRMAN. I do not question the integrity of the department. I am talking about business methods, and I am trying to do my duty.

Mr. HARRISON. It is merely a question of what "business methods" means, and people will differ on that. I doubt whether there are many business concerns which do not vary their plan of operation to suit their own particular needs.

The CHAIRMAN. One would not be in business very long if he conducted his business in this manner. It accounts to a certain extent for the inefficiency of the Government. It is the loose way that Government business is transacted. I do not know that we can look for any remedy or reform it. I know that I could make certain changes that would be to the benefit of the Government, but that is not the trend at the present time. The executive naturally wants all the power he can. Why have Congress unless it exercises its rights and prerogatives? If we are going to turn all these matters over to the executives, what is the use of Congress spending any time on them?

Mr. HARRISON. Congress, of course, controls the appropriations and indicates the manner in which, or the purpose for which, the money may be expended.

The CHAIRMAN. We ought to have something to say about what it is going to be used for. You spoke of checking up. Can any one point out where Congress has checked up anything? We have had one report from the Committee on Expenditures in the Department of Agriculture. I think we have had about three reports on these expenditures in these 20 years that I have been in Congress.

Mr. HARRISON. The department, of course, is not responsible for that; we submit a report on expenditures every year.

The CHAIRMAN. That is a different thing. You are a part of the executive branch, and we a part of the legislative. It is the duty of the legislative branch to check up just as much as it is your duty to check up.

Mr. HARRISON. I do not think the department should be made to suffer on that account, and it will suffer if all salaries in the department are placed on the statutory roll.

The CHAIRMAN. I stated at the outset that we wanted to make it as flexible as possible, but not as loose as it is at present. I am criticizing Congress, not the department, for this method.

Mr. HARRISON. We are suggesting in these estimates that you authorize the transfer of the forest supervisors, the forest rangers, and the forest guards. These employees have been on the statutory roll for several years, and the arrangement has proven to be an absolute failure. We are merely asking you to give us in a lump sum the total of the statutory salaries provided in the present bill. The only alternative is to considerably increase the salaries of the men at present employed. We are not asking for any increase in the amount appropriated but, with a lump sum, we will be able to handle the situation with the same amount. I take it that Congress is primarily concerned about the total amount provided for a particular purpose.

The CHAIRMAN. You have \$140,000,000, all told; you suggest that we give you \$33,000,000 in a lump sum to go out and expend it as you see fit.

Mr. HARRISON. I think such an arrangement would enable the executive officers to perform their functions much more effectively and efficiently, but, of course, I am not suggesting that any action of this kind be taken.

The CHAIRMAN. Why do you not suggest that so many million dollars be appropriated, and Congress stop with that?

Mr. HARRISON. We are merely contending for reasonable latitude.

The CHAIRMAN. I am perfectly willing to give you reasonable latitude; I am perfectly willing to do that.

Mr. HARRISON. Congress turned over \$21,000,000 to the Internal Revenue Bureau in one lump sum.

The CHAIRMAN. Yes; and we regret that we did it. It was necessary. That was during war times.

Mr. HARRISON. I understand that it was done this year.

The CHAIRMAN. And the pity of it is that the truth will never be known. It was necessary to do it under war conditions.

Mr. HARRISON. I do not think there is any bill that comes before Congress that is so completely itemized as this bill.

The CHAIRMAN. When it comes to salaries, as I stated at the outset, we carry nearly as many, if not more, on the statutory roll as are carried in all the other appropriation bills, but that is no excuse for not doing so all along the line. I believe this committee is entitled to more credit than nearly any other committee, as far as that goes, but, after all, it can be improved upon and should be improved upon. That has been my contention. I have talked about this until I am pretty nearly tired of talking of it. I have talked about it a number of years. It has taken a foothold, and Congress has given it a some attention. I still believe what I am contending for. I do not want to suggest anything radical, but anything we can do along business lines to improve the methods ought to be done. With the unrest in the country and everything else taken into consideration, I believe it is time to give some consideration to these matters. I do not want to injure the department or anybody.

Mr. HARRISON. I don't know of anything that would more seriously cripple the department than to put the scientific and technical force on the statutory roll. I think that statement will be supported by everybody who has had any responsible experience in the Government service.

Mr. McLAUGHLIN of Michigan. How many of these 252 men on page 43 would be called technical men?

Mr. HARRISON. They are all technical men.

Mr. McLAUGHLIN of Michigan. There are several executive clerks there.

Dr. MOHLER. They are all technical or professional men except those in the last eight lines. The latter include messenger boys, an executive clerk, clerks, and laborers who would not come under the lump-sum appropriation this year, as they were transferred by law to the statutory roll on July 1.

The CHAIRMAN. This is a matter that we will have to take up carefully. I intended to bring it up, and have discussed it with a

number of members who I believe have it in mind. Some day we will have to discuss it further and settle it one way or another. We will go on with our hearings now and take this up as a separate proposition. When we write the bill it will be a question whether we will write the salaries on the statutory roll, or whether we will make these lump-sum appropriations. That is a matter of policy for the committee to determine.

Mr. HARRISON. Will you not give the chief of the various bureaus an opportunity to tell you just what effect such action would have on their activities. They are responsible, in the final analysis, for the work under their direction.

The CHAIRMAN. I will be very glad to do that. We want information, we want to discuss it with you. I do not know what the committee may have in mind, but I have in mind exactly what I have stated to-day and all these years.

Mr. HARRISON. May I inquire whether the committee thinks of acting in advance of the report of the Joint Commission on Reclassification? That commission is investigating the whole subject and will make its report to Congress. It has accumulated a mass of data about the Government service.

The CHAIRMAN. There is no more consideration to be given to that commission than to other commissions. I take it we will lose nothing by taking action.

Mr. RUBEY. When do you expect that report?

Mr. HARRISON. The commission is required by law to submit its report during the first week in January.

Mr. McLAUGHLIN of Michigan. Is that the commission composed of Mr. Keating, Mr. Cooper, and so on?

Mr. HARRISON. Yes, sir. It has secured complete records of 107,000 Government employees here in Washington, their duties, and salaries, etc., and it has classified them into a number of different services. It has also accumulated a great deal of information about salaries paid by outside agencies.

The CHAIRMAN. The committee will now recess.

COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Wednesday, December 10, 1919.

BUREAU OF ANIMAL INDUSTRY—Continued.

The committee met at 10.30 o'clock a. m., Hon. Gilbert N. Haugen (chairman) presiding.

The CHAIRMAN. We have a number of gentlemen with us this morning interested in the tuberculosis appropriation, from whom we will hear first. This is found in item 61, page 44, of the estimates, "For investigating the disease of tuberculosis of animals, for its control and eradication, for the tuberculin testing of animals," and so on. Mr. Smith, who is live-stock commissioner of the Chicago Live Stock Exchange, will take charge of the order of the witnesses, suggesting the names of those who desire to be heard.

Mr. SMITH. Gentlemen, we appreciate very much the opportunity of being given this hearing, to come here and express some views we

have on this situation, and I would like, first of all, to have Mr. Brown, who is president of the Chicago Live Stock Exchange and president of the National Exchange, which is an organization taking in all of the live-stock exchanges in the United States, say a few words, first, on the general subject.

The CHAIRMAN. We will be pleased to hear Mr. Brown.

STATEMENT OF MR. EVERETT BROWN, PRESIDENT OF THE CHICAGO LIVE STOCK EXCHANGE AND OF THE NATIONAL EXCHANGE.

MR. BROWN. Mr. Chairman, as well as having the titles that the honorable professor has indicated, I was appointed four years ago as chairman of the sanitary committee of the Chicago Exchange, which has actually to do with the work on tuberculosis, the promotion of the eradication of tuberculosis, and I was chairman for that time. We feel that we have accomplished a great deal on that work in assisting the different departments of the Government who have had that under supervision. I may say, in starting, that we had a gathering in Chicago on the first night of the International Live Stock Exposition, representing 32 States and representing all the breeding associations in the United States that were interested in this eradication of tuberculosis. Prof. Smith will present to you, I think, the resolutions which were offered at that time and carried unanimously by that aggregation of gentlemen. I am particularly requested to present to you the request of the National Exchange, the Chicago Exchange, and our sanitary committee, in the hope that the unused appropriation passed by the last Congress—which, I understand, is approximately \$800,000—may be distributed so that the operating expenses of the Bureau of Animal Industry—which have been, I understand, restricted because certain amounts of this fund have been particularly appropriated to cover the operating expenses and the other part of the fund the indemnification—that that fund which now remains, of \$800,000, which was intended only to be used for indemnification purposes, should be distributed to permit the proper operation of the Bureau of Animal Industry so that they could proceed, and that the indemnification amount would also apply so that this fund could be used in its broader purposes in the eradication of tuberculosis.

The last Congress appropriated \$1,500,000 for the eradication of tuberculosis during the fiscal year ending June 30, 1920. Of this amount, \$500,000 was appropriated for operating expenses, such as the preparation of tuberculin, payment of salaries, and general administration, whereas \$1,000,000 was set aside for the payment of indemnities to the owners of reacting cattle slaughtered. The fund for operating expenses is now nearly exhausted, but there is still left in the indemnity fund something over \$800,000. Apparently it has not taken as much money for the payment of indemnities as many of us predicted. In order that the work may be continued through the year it is hoped that Congress will pass some kind of resolution giving the Bureau of Animal Industry authority to draw on the indemnity fund for the payment of operating expenses. It is further to be hoped that in making the appropriation

for the next fiscal year the law can be so worded that the bureau will be able to draw on the entire fund for either operating expenses or the payment of indemnities.

In connection with this we are looking forward, gentlemen, to what we hope will be an increase in the appropriation in the next Congress. We believe this work is so important that we hope your committee will recommend to the next Congress an increase in the appropriation and in connection therewith, and I desire to present to you that the Chicago Live Stock Exchange and the other exchanges in the United States favor liberal appropriations for the eradication of tuberculosis for the following reasons:

Statistics from the Division of Meat Inspection of the United States Department of Agriculture show that approximately 10 per cent of all the hogs slaughtered in the United States are affected with tuberculosis. These statistics also show that the disease is very prevalent among cattle, more especially among dairy and breeding cattle in the northern half of the United States.

That the large quantity of beef and pork annually condemned for tuberculosis means not only a great waste of valuable meat, but also a waste of feed that went into these animals. We frequently get reports of cattle that die on farms from tuberculosis. The loss on meat condemned by Government inspectors in packing plants, while borne for the time being by the packers, eventually falls back on the producer. Tuberculosis has been costing shippers of hogs to the Chicago market an average of 15 cents per hundred during the past year.

That tuberculosis is a hindrance to the breeding-cattle industry and discouragement to production.

That while tuberculosis is causing a greater annual loss than any other disease of farm animals, it is not highly contagious and can be eradicated. Control work that has been in progress in some of the States and in the Nation-wide campaign inaugurated two years ago by a congressional appropriation of \$500,000, conditional upon State cooperation, has already shown results. The percentage of cattle retained for tuberculosis affected with the disease at the Chicago market during the fiscal year 1917 was 4.34 per cent, and during the fiscal year 1919, 3.09 per cent. The percentage of cattle condemned for tuberculosis at the Chicago market has been reduced from 0.94 per cent in 1917 to 0.57 per cent in 1919.

The percentage of hogs retained for tuberculosis at the Chicago market has been reduced from 16.28 per cent in 1917 to 13.21 per cent in 1919. The percentage of hogs condemned for tuberculosis has been reduced from 0.34 per cent in 1917 to 0.21 per cent in 1919. If the percentage of condemnations in cattle killed at the Chicago market during the fiscal year ending June 30, 1919, had been as high as during the year 1917, 24,282 cattle would have been condemned or 9,830 more than were condemned during the year 1919—worth, at \$100 each, \$983,000. Had the percentage of condemnations in hogs at the Chicago market been as high as in 1919 (0.21 per cent) as in 1917 (0.34 per cent), the number condemned in 1919 would have been 28,424, or 10,535 more hogs than were actually condemned in 1919, worth, at \$40 each, \$421,400.

Lastly, tuberculosis in hogs comes almost entirely from cattle through infested milk and droppings. If the disease can be eradi-

cated from dairy and breeding cattle, it will disappear to a large extent from fattening cattle as well as from hogs. The sentiment throughout the country is favorable to the plan of testing all breeding dairy herds with tuberculin. There are a large number of farmers who have made application for the test, but it can not be given them because of a lack of Federal and State men to do the testing. A much larger appropriation is needed to carry on this work and we hope it can be made an annual appropriation until the disease is practically eradicated.

Now, gentlemen, if there are any questions you would like to ask me regarding this work, as far as I can give you any information, I will do so.

The CHAIRMAN. My understanding is that the item in which you are most interested is the one of \$500,000 for administrative and operating expenses?

Mr. BROWN. Yes, sir.

The CHAIRMAN. Thank you, Mr. Brown. May we have some information as to that item, and as to what is required?

Mr. SMITH. My idea is that you should have an adequate sum for indemnity?

STATEMENT OF MR. HOWARD B. SMITH, LIVE STOCK COMMISSIONER OF THE CHICAGO LIVE STOCK EXCHANGE.

Mr. SMITH. As I understand the situation, when this first came up many of us thought that the money required for the payment of indemnities should be greater than for the payment of expenses. I personally thought so, and I remember I talked with Mr. McLaughlin, of Michigan, and I thought it would take a good deal more money for the payment of indemnities for the actual cattle slaughtered than would be required for the operating expenses, the payment of salaries, etc. But we have, many of us, been fooled, for this reason: The price of beef has been very high, the highest on record in the history of the country, all during the year. Beef has advanced in the last 15 years nearly four times. Top cattle are selling in the Chicago market for \$21.50 a hundred. That does not mean the show cattle, but what we call the best cattle on the market. Beef has been selling very high and the salvage that beef men get or the proceeds they get from the sale of the salvage is high. I think you understand that about 80 per cent of all the reactors slaughtered pass for food; that is, according to our own statistics, at the Chicago market about 80 per cent of all the cattle which have tuberculosis, pass for food.

In other words, the disease is localized. Now, the facts are that beef brings almost as much as strictly healthy cattle would bring, and the result is this, that the farmers have been able to get a very good revenue out of that beef—what we call the salvage. And I think you men understand that the law is worded so that cattle that react on the test are appraised on the basis of the breeding value and the difference between the proceeds from the sale of the meat and the breeding value of the animal, that loss is borne, one-third by the Federal Government, one-third by the State, and one-third by the owner. I want to say to you gentlemen that that has proved to be a very valuable provision. The law is worded so that the loss

on the basis of the breeding or dairy value is borne one-third by the Federal Government, up to certain limitations. The Federal Government does not pay in any case to exceed \$50 as its share on a pure bred, or \$25 on a grade.

Mr. McLAUGHLIN of Michigan. Do you understand that the appraisal is on the breeding value alone?

Mr. SMITH. Yes; on the breeding value.

Mr. McLAUGHLIN of Michigan. Does the law require that?

Mr. SMITH. Yes; the dairy or breeding value, Mr. McLaughlin. It is worded so that it is limited to a rather small sum, but it is on the basis of the dairy or breeding value. Now, the difference between the value of the meat of the animal and the breeding value of the animal represents the loss sustained. I can put it in this way: Suppose I have a dairy cow that reacts and the appraisers value that animal at \$150 and that animal goes to slaughter and the meat passes inspection and the meat brings \$75, which is not unreasonable. Now, the difference between that value of the meat which I get and the \$150 which represents the breeding or dairy value of the animal means a loss of \$75 to me. The Government pays one-third of that loss, which is \$25; the State pays one-third of that loss, which is \$25, and I stand the other one-third. The Government does not pay more than \$25, no matter how valuable the animal is. If that animal had been appraised at \$200, I would not have gotten a cent more.

Mr. McLAUGHLIN of Michigan. The law, as I understand it, is as follows: That out of the money hereby appropriated, no payment of compensation for any tuberculosis animal destroyed shall exceed one-third of the difference between the appraised value of such animal and the value of the salvage thereof. I do not see anything about breeding value in there.

Mr. SMITH. It says appraised value.

Mr. McLAUGHLIN of Michigan. Yes, appraised value, for beef, for dairy, or for breeding purposes.

Mr. SMITH. The appraised value would necessarily represent the real value for whatever purpose it is intended.

Mr. McLAUGHLIN of Michigan. That is it, for whatever purpose. So are you entirely right in saying that that appraised value is for breeding purposes? That is the question I ask you; I do not think you are entirely right about that.

Mr. SMITH. I do not know that it is definitely stated in the law, but practically all of those cattle are breeding cattle or dairy cattle; there are practically no steers whatever, but they are practically all breeding cattle or dairy cattle. I think I am right in that, Dr. Kiernan, that nearly all of these cattle are breeding cattle or dairy cattle.

Dr. KIERNAN. Yes.

The CHAIRMAN. The contention was that it would not be necessary to protect steers.

Mr. SMITH. No. What I was trying to bring out was this, that the proceeds of the sale of the salvaged meat, being very high, have gone a long way toward reimbursing these farmers, and that the one-third of the difference paid by the Federal Government and by the State has not been as great as it would be if the meat were lower

in price. I think you see the point there, that the meat value of the animal has gone a long way toward reimbursing the owner and that the difference, representing the dairy or breeding value, is comparatively small and the result has been the money required for the payment of indemnities has not been nearly as great as we anticipated; while the money required for paying the operating expenses has, of course, been heavy.

Now, as I understand the situation, we found in Illinois that some of the Federal men, that their services had been discontinued, and naturally we made inquiry as to why their services had been discontinued. Other States were in the same situation. Through inquiry we found it was necessary because the operating fund was getting very low, whereas there was a little over \$800,000 left in the indemnity fund. Now, in order that the work may not be hindered, that it may proceed through the year, up to June 30, we are hoping that some sort of a resolution will be passed authorizing the bureau to draw on the indemnity fund for the payment of operating expenses. If that can not be done, of course the work will have to stop long before the end of the year and there will still be a good surplus in the indemnity fund. That is the point we wanted to bring out. Are there any questions on that. The details, of course, on that will be presented by Dr. Mohler or Dr. Kiernan, representing the bureau. I think possibly you may have questions to ask them a little later.

Mr. McLAUGHLIN of Michigan. One question naturally arises, and that is, how much of this inspection work should be done by the Federal Government. Some may think the work is of such a character that it does not require the highly expert work of officials of the department. The testing of cattle can be done by any veterinarian. Is it necessary and is it proper for the Federal Government to go into a State and do all that kind of work?

Mr. SMITH. I would like to say in that connection, Mr. McLaughlin, that the people as a whole look upon the work of the Federal testers as being about the best work that can be done along this line. There are, we are sorry to say, a good many local veterinarians whose work can not always be depended upon. If we ship cattle to Canada, the Canadian buyers insist upon Federal testing, insist upon the work being done by Federal men. And cattle that go into some of the States must be tested by Federal men rather than by State men. Now I understand it is the plan of the bureau to work out a scheme whereby many local veterinarians will be able to do some of this work, so long as their work remains reliable and good. That will probably be brought out later on.

The CHAIRMAN. Is not the State work generally accepted?

Mr. SMITH. The State Work is generally accepted; yes.

Mr. McLAUGHLIN of Michigan. You say when cattle are shipped from one State to another, they are only shipped and only accepted by the State into which they go after Federal inspection?

Mr. SMITH. Not all the States, but there are some States that want them tested by Federal men.

Mr. McLAUGHLIN of Michigan. I understood the State certificates were accepted quite generally.

Mr. SMITH. I say the State certificates are accepted quite generally.

The CHAIRMAN. Have you knowledge of any State certificates not being accepted in any other State?

Mr. SMITH. A few years ago some States would not permit cattle to be shipped from the State of Illinois.

Dr. MOHLER. Wisconsin was another.

Mr. SMITH. They would not take it at all.

Mr. BROWN. They would not take it during the foot and mouth disease; during that trouble they would not take the State certificates.

The CHAIRMAN. That is during an emergency, of course; which is different.

Mr. SMITH. That is true of the tuberculosis also, is it not, Doctor?

Dr. MOHLER. Yes.

Mr. SMITH. Some States will not accept cattle unless they are inspected by Federal men.

Mr. TINCHER. There is no experiment about the testing any more, is there?

Mr. SMITH. No; not to any great extent. The tests now are considered very reliable, but there are different kinds of tuberculin tests under investigation.

Mr. TINCHER. What I mean is, have you not gotten a test that is not an experiment?

Mr. SMITH. Yes, sir.

Mr. TINCHER. Any graduate veterinarian could make that test?

Mr. SMITH. Yes, sir; any graduate veterinarian could make the test.

Mr. TINCHER. Do you know any place where Federal men are making the tests now, and have, during the last year, made the tests?

Mr. SMITH. Where Federal men have been making the tests?

Mr. TINCHER. Yes.

Mr. SMITH. The Federal men are making the tests in nearly all of the States.

Mr. TINCHER. What do you mean by "Federal men"?

Mr. SMITH. Men employed by the Bureau of Animal Industry.

Mr. TINCHER. You mean they are actually making the tests?

Mr. SMITH. Yes.

Mr. TINCHER. I looked the matter up while at home and I found the tests being conducted there were being made by the local veterinarian, who was appointed by the State veterinarian.

Mr. SMITH. That is in Kansas.

Mr. TINCHER. And was being paid for making that test by the owner of the stock.

Mr. SMITH. Yes.

Mr. TINCHER. And all of the Federal money was being used for demonstrating, as far as my State was concerned, as far as I could find out.

Mr. SMITH. The situation is this: If a man in your State, Kansas, sells a breeding animal to some other State, he can have that animal tested by the local veterinarian if that local veterinarian is approved by the State authorities.

Dr. MOHLER. Right there, I wish to state that Minnesota has refused to take any cattle from your State, Mr. Chairman, unless the inspections are made by Federal inspectors.

The CHAIRMAN. How recently?

Dr. MOHLER. Over a year ago. Every dairy or breeding animal that goes into Minnesota from Iowa is inspected by a Federal inspector.

Mr. TINCHER. Here is the point I am making: Here we have a test which is no longer an experiment. If we have a serum or whatever you call it, a tuberculin, which is no longer an experiment, it does not make much difference whether one State sets itself upon a pinnacle and says "We won't take live stock from another State unless certain authorized men make the test" or not. For instance, I raise hogs; there is no occasion any more for the Government to appropriate money to make experiments with reference to hog cholera tests. I know how I can keep the hog cholera out of my herd; I know how I can be careless and let it get into my herd. But the Government has found a serum, and I am using that. Now, is not the tuberculosis test the same kind of a proposition, and if I want to follow the prescribed rules by your department I can get rid of tuberculosis in my herd of cattle and I can keep it out of there?

Dr. MOHLER. Many breeders are doing that through the employment of private veterinarians.

Mr. TINCHER. I suppose the theory on which the Government originally got into this thing was that they would benefit the industry by certain researches and investigations that would make it possible for a man to do that. But the Government can not eradicate by appropriations and can not hire enough men to wipe out the tuberculosis of cattle; that is, to go and do the testing of the herds to do that. They have to have the cooperation of the owners of the herds of cattle. Now, if it is no longer an experiment, and if we have the method for doing that, is it not about time to let the individual take some responsibility?

Mr. SMITH. I think I can answer that question, Congressman, and I say there are some breeders who are hiring their local veterinarians. Now, they are doing it for this reason: There are many breeders that have very valuable cattle, worth a thousand or two thousand dollars, and if they put those cattle under Federal or State supervision they have pretty nearly got to have them slaughtered, and they can not afford to lose those valuable animals. And they are doing it in a private way; they are hiring local veterinarians and segregating those reactors and keeping them on the farms to raise offspring, and later on they will have them slaughtered. Now, there is nothing objectionable about that. Every man has a right to do that, which is a very good way.

But in regard to private veterinarians I want to say this, that the reason some States will not accept the tests of private veterinarians is because we have found that a great many private veterinarians are not honest; they will do things in order to pass the animal, to give a certificate of health. They will sometimes do what we call plugging the test—it has been done frequently—by injecting tuberculin before the regular test is made. A very common thing among private veterinarians is to make out a chart and not take any temperatures at all. They are working for this man, and he wants to get the animal through, and the local veterinarians is paid a little fee for making up a false chart. That is the reason a good many States will not accept

the work of a local veterinarian. The Federal man can not afford to do anything of that sort.

The CHAIRMAN. But how about the State veterinarians and their assistants? They are the ones to whom I have reference. I think in my State the State veterinarian has an assistant in nearly every county in the State.

Mr. SMITH. We have in Illinois State veterinarians and assistant veterinarians. We have recently adopted a new plan in Illinois. The old plan was to have a sort of civil-service examination, and a man by answering certain questions could be put on the list as an assistant veterinarian. We had a lot of trouble with that plan; we had a lot of men on that list as assistant veterinarians who did dishonest work. At the last session of the legislature it changed that law, and we no longer have assistant State veterinarians appointed in that way. The State veterinarian now appoints as assistant State veterinarians men who are reliable and will do that work satisfactorily. We have to have men who are dependable men, who do strictly honest work in making the tests. When that is done they ought to accept State tests just as readily as Federal work, and I feel sure it is the plan to employ more and more of those local veterinarians who will prove themselves honest and capable. If a man sells an animal, he frequently hires his local veterinarian, but the local veterinarians, as yet, are not employed to any great extent in conducting the whole-herd tests. You see, in this work of eradicating tuberculosis we have got to test the whole herd to make any progress. You can not go in and test one animal or two animals; you have to go through the whole breeding herd and clean it up, and either slaughter the reactors or separate them. They usually slaughter them. That is the only way of making any progress in eradicating this disease. And to-day that work is being done to a large extent by Federal and State men, and it is planned to employ local men to a large extent in doing that work.

Mr. McLAUGHLIN of Michigan. The idea advanced by Mr. Tincher, of Kansas, is that it is the duty and entirely proper for the Federal Government to make the investigation and work out a plan and evolve ideas, principles, and so forth, that can be applied. When that is done, the application of them, after that, is simple, and it is a question of the physical labor and expenditure of money, and it is up to the local people to furnish that money and to do the work. I remember very well the statement made by Mr. Scott, of Kansas, formerly a member of this committee, and a very able man, who resisted the appropriation for work in the States in carrying out the plan evolved by the Federal Government, and he said that when the Government had worked out a plan and developed a principle, and there is no question about its successful operation, and there simply remains the matter of carrying out, involving the expenditure of money and work, that in his opinion it was up to the States to carry it out. I did not agree with him at the time as to the particular matter that was up before the committee, but the more we see of demands of States for Federal appropriations and the employment of Federal agents to go into the States and do the work the more I come to think that Mr. Scott

was right. It may be that this should be an exception in this case; perhaps the work is so big and there is such a general interest in it that it exceeds State lines and all that. But if Mr. Tincher is right, and you answered his question when you said there was no doubt about the efficacy of this testing proposition—if he is right about that, then it is simply a question of spending money by the States and hiring the right kind of men. And it does not seem to me that you answer the question when you say some of the State men are dishonest.

Mr. COOK. I think I can give Mr. Tincher a little information. Take it in Montana: We have what we call the tail test; the interdermal, I think, is the proper name for it. Many States will not accept that test. We can not ship into Minnesota and many other States. We think that test is all right; the other States do not think so and they want a Government test. If we ship into Canada, they won't accept our test there at all; they insist on a Federal test. I know some bulls shipped up there, tested by a man who was absolutely all right. He got them to the line and could not get them across. I went to Ottawa myself on behalf of the man (who was a friend of mine), but I could not do anything with them. They just absolutely refused to have anything to do with any tests made by any of the States. And we ship a great many cattle into Canada, and if the accredited herd system means anything at all, it means when you issue a certificate it is accepted anywhere.

Mr. TINCHER. Do you know the test that is approved by our department?

Mr. COOK. That is the subcutaneous test.

Mr. TINCHER. Yes. Now, I do not know just how we can help your trouble, if your State is using a different test which is not approved. It is not just clear to me.

Mr. COOK. Other States are using it, too.

Mr. TINCHER. I use the test approved by the Government. The veterinarian says it is all right. Just follow that out to its logical conclusion and see what would happen. Suppose we should say that no part of the appropriation should be used, because the Government has found a real test. Now right on that subject, Mr. Smith, you see I follow the test approved by the Government; I take the trouble to take care of my herd; my neighbor don't: Is it your idea that the Government can force him to do so?

Mr. SMITH. Not necessarily. I do not think it is desirable.

Mr. TINCHER. Say you could not eradicate the disease from cattle generally in the United States—you could not get rid of it (you could not anyway, so far as that is concerned, by reason of its being a germ disease).

Mr. SMITH. We can get rid of nearly all of it, Congressman.

Mr. TINCHER. I do not suppose in this serum appropriation because the disease is so prevalent, the germ is so prevalent—I do not suppose it would be contended that we would be able to appropriate enough money to entirely eradicate the disease.

Mr. SMITH. I just want to say on that, first, that all we know is that tuberculosis in hogs comes from cattle—almost all of it—and we know tuberculosis in fattening cattle comes to a large extent from breeding cattle, and we have every reason to believe we got this con-

tagion in this country from early importations from Europe of pure-bred cattle. Europe has a great deal of that disease, and those cattle were brought over here and they were sold to various breeders over the country and the disease was scattered. And I feel sure if we can go through those breeding herds and clean up those breeding herds you would see a big reduction not only in the breeding herds but in the grade cattle. It has already shown results.

Mr. TINCHER. Is it your idea for the Government to appropriate enough money—say I have 100 head of cattle in Kansas, is it your idea that I can have them tested without cost to me?

Mr. SMITH. Yes; by the State and Federal Government.

Mr. TINCHER. That any man who has a breeding herd can have it tested?

Mr. SMITH. Yes, sir.

Mr. TINCHER. Without any expense to him?

Mr. SMITH. Yes, sir.

Mr. TINCHER. Then you are not beginning to ask for enough money in this appropriation, are you?

Mr. SMITH. He should have the privilege of having his herd tested under State and Federal supervision.

Mr. TINCHER. Free of charge?

Mr. SMITH. Free of charge where he has his whole herd tested and where he signs up an agreement to abide by these regulations that have been provided, the sanitary regulations, etc. Now, the plan is very favorable for this reason, that it leads rather than drives. No man is compelled to have his herd tested, but the conditions are made such that he wants them tested; and if the testing is done free of charge and if the State and Federal Governments will share with the owner part of that loss, he is willing to have his whole herd tested.

Mr. TINCHER. When would you stop this law; when would you quit that; how long would you keep that up?

Mr. SMITH. It would seem as though it ought to be kept up until the disease is practically eradicated.

Mr. TINCHER. You can not eradicate a germ disease, can you?

Mr. SMITH. You can reduce it to a very large extent.

Mr. TINCHER. We have all had the experience with the cholera in hogs and things of that kind.

Mr. SMITH. Yes, sir.

Mr. TINCHER. How many years would you advocate keeping up this offer of a free Government test to all breeding animals in the United States?

Mr. SMITH. I believe, Congressman, if this work continues, say, for 10 years, you will see it down to a pretty low point.

Mr. TINCHER. With the money appropriated, it won't begin to be enough to offer that free test to all the breeding herds in the United States.

Mr. SMITH. It has been enough to cover something like 10,000 herds of breeding cattle this year.

Mr. TINCHER. That would not cover my congressional district, Mr. Smith.

Mr. SMITH. We are not encouraging the testing of all grade cattle. We are encouraging testing breeding herds, the thoroughbred herds, first, the seed stock. They are the most dangerous, and they

have the highest percentage of the disease. Further than that, these seed animals, as we call them, are scattered here and there over the country and they carry the disease with them. The general trend of the grade cattle is to the market, and they are not so dangerous; that is, the general trend of grade cattle is from the farm to the market, and they do not scatter the disease over the country. The pure bred cattle do scatter the disease, and I believe we ought to confine this work to a large extent to the pure bred herds first. Of course, in the grade herds, where we know it exists, we should extend this privilege. I believe that is the logical plan, to undertake the testing of the pure bred herds of cattle and those grade herds where we know the disease exists.

Mr. TINCHER. If you are right in that theory (and I do not doubt the figures at all given by the gentleman, that you have made a great saving in meat production)——

Mr. SMITH, Yes.

Mr. TINCHER (continuing). If you are right in that theory (and we absolutely know now, as a scientific proposition, how to keep cholera out of hogs, and we know there is not any comparison with the figures of tuberculosis as to the loss of meat produced in hogs every year by cholera), why not offer free to provide the vaccine and treatment of all the hogs in the United States by the Government?

Mr. SMITH. The Government is cooperating in vaccinating hogs.

Mr. TINCHER. A man raising hogs and observing the rules spends just so much money on every hog he raises to vaccinate it at a certain age.

Mr. SMITH. Really it would not be a practical proposition for a man to have his hogs vaccinated unless he knew they were exposed.

Mr. TINCHER. I differ with you there, that it is not a practical proposition to have the herd of hogs vaccinated. When you vaccinate every one of them at a certain age, that is the only way to have an immune bunch of hogs.

Mr. SMITH. I have herds in southern Michigan, and they are never vaccinated unless I know cholera is in the neighborhood.

Mr. TINCHER. That may be true in certain neighborhoods. Would it be practicable, within the next ten years, to have cattle that were not tested for tuberculosis, if you are going to eradicate that disease?

Mr. SMITH. To have cattle that were not what?

Mr. TINCHER. That were not tested for the disease.

Mr. SMITH. I think all the breeding cattle should be tested, because you can not tell by looking at the animals whether they have tuberculosis or not.

Mr. TINCHER. I wonder if the same situation does not prevail with cattle that prevails with hogs? It just occurred to me since we have been talking—I spoke of the fact in reference to our way of handling hogs in our locality—that the only safe way to raise hogs is to take them all at a certain age and have them vaccinated, and when we do that at a certain age we are going to be free of cholera. I presume that is not true of the locality you mentioned.

Mr. SMITH. No.

Mr. TINCHER. And probably that would be the same situation with reference to the cattle.

Mr. SMITH. Yes.

Mr. TINCHER. But we know the treatment for hogs, and any man can buy the vaccine for so much and have it administered. The Government found that out for us; we appropriated the money, and it has ascertained that treatment.

Mr. SMITH. Yes.

Mr. TINCHER. Now they have done the same thing with reference to cattle. The only thing worrying me is where we are going to stop. I am for the cattle and for the appropriations necessary, but it looks to me like an awful big proposition to appropriate enough money to give free tuberculin tests to all the cattle in the United States if a man wants it.

Mr. SMITH. There is this difference: You can always know when there is an outbreak of cholera, but no man can tell when there is tuberculosis in a herd of cattle until they are tested for tuberculosis. That is the only way to tell, to have a man go through the entire herd and make the test.

Mr. TINCHER. It is too late to tell with hogs after they get the cholera.

Mr. McLAUGHLIN of Michigan. We have been told by some scientific gentlemen that tuberculosis is not transmitted to the offspring.

Mr. SMITH. It is not, Congressman, ordinarily. A calf can be weaned from its mother and can be raised a healthy calf if it is taken right away. If it is left to nurse the dam, it is in great danger of contracting the disease from the mother, or if it is left in the stall and eats out of the same manger there is great danger of its contracting the disease. But if the calf can be removed from the cow it can be raised a healthy calf, and many are doing it.

Mr. TINCHER. It is exactly the same proposition as tuberculosis in the human being; it is a germ?

Mr. SMITH. A germ.

Mr. TINCHER. And there is not as much probability of eradicating it in the cattle as there is in the human family.

Mr. SMITH. I just want to give you the figures to show the actual progress that has been made in the last two years:

The following table, compiled from data furnished by the division of meat inspection of the United States Bureau of Animal Industry, shows the number of cattle and hogs slaughtered at eight Middle West markets, the number and per cent retained (tagged) for tuberculosis, the number and per cent sterilized and the number and per cent condemned because of this disease during the fiscal years ending June 30, 1917; June 30, 1918; and June 30, 1919:

	Total slaughter.	Retained for tuber- culosis.	Per cent.	Passed, sterilized.	Per cent.	Con- demned.	Per cent.
CATTLE.							
Chicago:							
1917.....	2,160,899	93,896	4.34	4,757	0.22	20,293	0.94
1918.....	2,563,572	99,105	3.86	5,864	.23	18,153	.78
1919.....	2,563,819	80,223	3.09	5,684	.22	14,552	.67
Kansas City:							
1917.....	1,318,550	8,727	.66	494	.04	2,197	.17
1918.....	1,572,342	9,518	.60	561	.03	1,718	.11
1919.....	1,528,295	6,863	.45	534	.03	1,279	.08
Omaha:							
1917.....	866,340	14,953	1.73	874	.10	2,178	.25
1918.....	967,714	13,796	1.42	941	.09	1,881	.19
1919.....	997,462	13,821	1.38	628	.06	1,805	.18

	Total slaughter.	Retained for tuber- culosis.	Per cent.	Passed, sterilized.	Per cent.	Con- demned.	Per cent.
CATTLE—continued.							
East St. Louis:							
1917.....	670,818	3,163	0.47	223	0.03	856	0.13
1918.....	714,120	3,706	.52	238	.03	928	.13
1919.....	683,786	3,055	.44	376	.05	710	.10
South St. Joseph:							
1917.....	360,147	2,832	.81	103	.03	750	.21
1918.....	451,288	2,974	.66	128	.02	631	.13
1919.....	472,006	2,457	.52	127	.03	398	.08
St. Paul:							
1917.....	267,737	13,703	5.12	80	.03	2,880	1.07
1918.....	299,728	5,774	1.92	192	.06	1,403	.47
1919.....	250,413	5,232	2.04	206	.08	1,145	.45
Sioux City:							
1917.....	237,777	7,745	3.25	299	.13	1,193	.50
1918.....	306,237	9,037	2.91	284	.09	1,555	.50
1919.....	345,322	8,271	2.36	335	.09	1,309	.38
Milwaukee:							
1917.....	94,556	4,375	4.62	121	.13	907	.96
1918.....	108,727	3,689	3.39	182	.11	622	.57
1919.....	118,632	5,717	4.81	131	.11	889	.75
Total, 8 markets:							
1917.....	5,966,824	149,394	2.50	6,591	.12	31,254	.52
1918.....	6,983,728	147,599	2.11	3,390	.05	26,891	.38
1919.....	6,995,735	125,639	1.79	8,021	.11	22,067	.31
SWINE.							
Chicago:							
1917.....	7,550,530	1,229,297	16.28	31,274	.41	25,791	.34
1918.....	6,692,697	1,016,171	15.18	27,840	.41	18,152	.27
1919.....	8,359,895	1,104,631	13.21	35,677	.39	17,869	.21
Kansas City:							
1917.....	2,890,627	105,137	3.64	3,377	.12	5,897	.14
1918.....	2,775,329	128,348	4.62	3,951	.14	3,534	.13
1919.....	4,011,475	192,508	4.79	5,551	.14	4,189	.10
Omaha:							
1917.....	2,236,715	189,441	8.47	8,079	.36	4,614	.21
1918.....	2,132,068	171,468	8.04	8,121	.38	3,670	.17
1919.....	2,641,140	236,027	8.92	9,466	.33	5,359	.11
East St. Louis:							
1917.....	1,653,839	159,817	9.67	2,895	.18	2,170	.13
1918.....	1,490,954	119,723	8.03	3,439	.23	1,865	.12
1919.....	1,954,694	141,361	7.22	4,111	.21	2,080	.10
South St. Joseph:							
1917.....	2,109,540	80,638	3.92	1,360	.06	3,527	.17
1918.....	1,772,773	68,776	3.88	1,418	.08	2,059	.11
1919.....	2,167,416	76,746	3.54	2,087	.09	1,860	.08
St. Paul:							
1917.....	1,229,215	74,227	6.04	991	.08	1,452	.12
1918.....	1,190,948	60,129	5.05	1,440	.12	1,063	.08
1919.....	1,345,770	78,922	5.86	1,951	.13	1,340	.09
Sioux City:							
1917.....	1,360,469	244,591	18.00	7,744	.57	3,833	.28
1918.....	1,232,741	216,313	16.34	6,359	.48	4,476	.34
1919.....	1,523,563	179,331	11.77	6,724	.44	4,984	.32
Milwaukee:							
1917.....	1,042,223	246,540	23.64	2,956	.28	1,873	.18
1918.....	1,121,361	272,651	24.31	3,191	.27	2,064	.18
1919.....	1,577,398	334,300	21.18	2,723	.17	2,859	.18
Total, 8 markets:							
1917.....	20,073,178	2,329,688	11.60	58,676	.29	49,157	.245
1918.....	18,408,871	2,053,579	11.16	55,759	.30	36,884	.200
1919.....	23,781,351	2,343,816	9.85	68,190	.24	40,570	.17

If the percentage of condemnations in cattle killed at the Chicago market during the fiscal year ending June 30, 1919 (0.57 per cent), had been the same as in 1918 (0.78 per cent), the number condemned in 1919 would have been 20,232 cattle or 5,680 more than were condemned worth, at \$100 each, \$568,000. If the percentage of condemnations in cattle killed at the Chicago market in 1919 (0.57 per cent) had been the same as in 1917 (0.94 per cent), the number condemned in 1919 would have been 24,382, or 9,830 more than were condemned worth, at \$100 each, \$983,000.

Had the percentage of condemnations in hogs at Chicago been the same in 1919 (0.21 per cent) as in 1918 (0.27 per cent), the number condemned in 1919 would have been 22,572, or 4,673 more than were condemned, worth at \$40 each, \$186,920. Had the percentage of condemnations in Chicago in 1919 (0.21 per cent) been the same as in 1917 (0.34 per cent), the number condemned

would have been 28,424, or 10,535 more than were condemned in 1919, worth at \$40 each, \$421,400.

The reduced percentage of condemnations on both cattle and hogs in Chicago in 1919, effected a total saving of \$754,920 as compared with 1918, and \$1,404,400 as compared with 1917, assuming that the losses on cattle and hogs retained for tuberculosis, but not condemned would offset the value of the salvage on condemned animals.

On the same basis of valuations, the reduced percentage of condemnations on both cattle and hogs at these eight markets in 1919 effected a total saving of \$2,136,860 as compared with 1917.

It is apparent that the tuberculin testing of herds of breeding cattle, the elimination of the reactors and the adoption of better methods of sanitation is reducing the prevalence of tuberculosis in both cattle and hogs.

For example, in 1917, 0.94 per cent of the cattle killed at Chicago were condemned for tuberculosis. In 1919, it was only 0.57 per cent. That is the best barometer of the conditions we have, when we get these reports from the division of meat inspection and see the actual conditions at these various markets. I have here all the Middle West markets, and the situation with reference to hogs in Chicago is this. The percentage of condemnations has been reduced from 0.34 in 1917 to 0.21 in 1919. Now, something is causing this to begin to go down. It had been coming up all the time until this appropriation was provided two years ago. I think the farmers are cooperating well. I want to say to you men that in my work as live stock commissioner I come in contact with men from all over the country, farmers and stock men, and they are all very greatly interested in this work of eradicating tuberculosis. We find the shippers and feeders are all of them anxious to cooperate. They realize it is a real menace to the live stock industry. And I maintain that the testing that has already been done and the improved sanitary conditions that have been brought about on our farms has been a big factor in reducing the prevalence of tuberculosis already. And that is the reason I do not hesitate to say if we can continue this work just the way we have been doing for 10 years, you will see, Mr. Tincher, that the situation is so well in hand in this country that it can be controlled. I had a herd of cattle in southern Michigan and I had it tested five years ago and wherever I found reactors I disposed of them and I have a clean herd and have had no trouble since. And I know any number of breeders who had that done.

Mr. TINCHER. Who tested yours?

Mr. SMITH. A Federal man.

Mr. TINCHER. Do you have him keep up the test?

Mr. SMITH. Yes; every year.

Mr. TINCHER. Is there a local man appointed by the governor?

Mr. SMITH. This work has been done by a Federal man entirely.

Mr. TINCHER. Sometimes the Federal man is a home man, too.

Mr. SMITH. Ordinarily the Federal man is stationed at some central point, and they go out and do the inspecting free of charge.

Mr. BROWN. From where was your inspector?

Mr. SMITH. Detroit. He is stationed at Lansing now. And I have a great deal of faith in this accredited herd plan which has been launched through provisions made by this appropriation. The accredited herd plan is this: It gives every breeder a chance to have his whole herd tested annually, and he simply signs up an agreement to have the Federal or State man to make the test every year, and if they find reactors they tell him to send them to slaughter

or else to put them off by themselves so they won't expose their cattle. If they own real valuable cattle they frequently like to keep them until they get some offspring from them, and they are allowed to do that, but if they have an accredited herd they must have no tuberculosis cattle on the premises. After they pass a second test and are shown to be free from the disease they get a certificate showing their herd is free from tuberculosis. When they have that certificate any breeder can ship cattle from his herd to any State of the Union without any special tests. Every State of the Union will take those cattle.

This is proving to be a very popular plan and breeders all over the country are making an effort to have their herds cleaned up. They lose something; the Government pays a small part of that cost, the State pays a part, and the breeder loses the rest of it. But he is willing to stand that loss to have a clean herd and the fact that he can make interstate shipments without restrictions gives him an advantage. I am confident the way this thing is going to-day that in a few years we will have tuberculosis practically eradicated from cattle, pure-bred cattle, and I am satisfied it will make a great reduction in the prevalence of the disease among grade cattle. The way the work has been going we feel it is most encouraging, and we simply want to give all these breeders an equal chance to have their herds tested. The facts are there are over 3,000 breeders to-day who have made application to have their herds tested and the Government and State men can not get to them. They have too many applications on their lists. And I believe we ought to keep this up, and it is going to take more men, but as long as the breeders are willing to have their herds tested I believe we ought to make every effort possible to furnish the necessary number of men to do that work.

Mr. TINCHER. What would you think of this proposition? We know what the test is; now, why not pass a law requiring before they can put their produce or stock in interstate commerce that they must make the test, that they comply with the law requiring that test individually.

Mr. SMITH. That is frequently required now. Every State requires a test.

Mr. TINCHER. Not for the produce, not for the butter.

Mr. SMITH. Not for the butter; that is true. For the produce that is not usually required, but any animals must be tested you know. Any cattle sold into another State have to be tested for tuberculosis before they can go into that State.

Now I would like to have Mr. Harding make a statement on this, Mr. Chairman.

The CHAIRMAN. Thank you, Mr. Smith. I will ask Dr. Mohler a question first. I would like to call your attention to the note in the book of estimates. It reads: "It is only necessary to point out that during the month of July, 1919, the department expended approximately \$35,000 for salaries and expenses and only \$7,000 for indemnities, to show how the department is hampered by the restriction placed on the expenditure of its appropriation." \$35,000 would only be \$420,000, and we are giving the department \$500,000. I take it that is correct, Dr. Mohler?

STATEMENT OF DR. JOHN R. MOHLER, CHIEF OF THE BUREAU OF ANIMAL INDUSTRY, DEPARTMENT OF AGRICULTURE.

Dr. MOHLER. This book of estimates was prepared back in August, so that the only month we had to base an estimate on was July. Since that time, for the first four months of the fiscal year, we have spent almost \$200,000. At that rate, we will spend \$600,000 this year, or \$100,000 more than the appropriation provides, which means we will have to lay off 100 inspectors between now and the first of July, in order to reduce our expenses about \$20,000 per month.

The CHAIRMAN. The estimates call for only \$1,180,440, and we gave you a million and a half last year.

Dr. MOHLER. We are asking now that the proviso which Congress saw fit to put in last year be stricken out, which proviso sets aside \$500,000 for operating expenses and \$1,000,000 for indemnities.

The CHAIRMAN. But, after all, the indemnities are the most important part; the inspection amounts to nothing unless you have money to reimburse the owner?

Dr. MOHLER. For the first four months of this year we have spent nearly \$200,000 for operating expenses and we have spent only \$52,000 for indemnities. At the prices which hides and meat of animals bring to-day, it has required an expenditure by the Federal Government of only \$29.19 per head for indemnities, so you can slaughter a great many animals and keep within the million dollars for indemnities at \$29.19 a head.

The CHAIRMAN. My recollection is the States appropriated about \$1,800,000?

Dr. MOHLER. Almost \$2,300,000.

The CHAIRMAN. I mean as it was presented to the committee last spring. I understand other appropriations have been made since, but at that time it was about \$1,800,000?

Dr. MOHLER. That is right.

The CHAIRMAN. And I believe you estimated you would require about \$700,000 for the operating expenses?

Dr. MOHLER. Fifty-fifty, we thought; \$750,000 each way.

The CHAIRMAN. And after consulting with you, the subcommittee decided to give you \$500,000 for operating expenses and \$1,000,000 for indemnities. We wanted to be certain that we were appropriating enough money to pay the indemnities. We were off on the estimates of the operating expenses; however, we accepted your estimates.

Dr. MOHLER. As I say, at the present rate we will expend \$100,000 more than the appropriation for operating expenses.

The CHAIRMAN. What would be your estimate next year for operating expenses?

Dr. MOHLER. As stated there in the book of estimates, we would prefer to have that left open.

The CHAIRMAN. That is rather indefinite.

Dr. MOHLER. Then to be more definite, we would rather have what the Senate put in last year. You remember after the House passed the bill it went to the Senate committee and the Senate committee made the recommendation of \$800,000 for operating expenses and \$700,000 for indemnities. That was passed by the Senate, but in conference the wishes of the House prevailed.

The CHAIRMAN. You can readily see it would not do any good to appropriate money for operating expenses unless we had money to pay the indemnities. The inspection would not be any good, because the cattle can not be slaughtered without paying the indemnity.

Dr. MOHLER. That is very true, but the best indication of what we need for the future will be what has been spent in the past. And as I stated in the first four months, July, August, September, and October, the indemnities which have been settled were only \$52,000.

The CHAIRMAN. The contention is that the free inspection should be limited to those who enter into this agreement.

Dr. MOHLER. That is true.

The CHAIRMAN. That is on a 50-50 plan?

Dr. MOHLER. Yes, sir.

The CHAIRMAN. And outside of that a fee should be paid?

Dr. MOHLER. Yes, sir; in private practice, but the department permits no fees to be charged.

The CHAIRMAN. Is it not safe for the Federal Government to accept the findings of the States? For instance, a State tests the cattle and it agrees to pay on the basis of 50-50?

Dr. MOHLER. Yes, sir; we are accepting the findings of the States every day; we are cooperating with 45 of the 48 States and accepting their State men's work.

The CHAIRMAN. Do you cooperate with them in the inspection and testing, too?

Dr. MOHLER. Yes, sir; we cooperate in every way.

The CHAIRMAN. Is it not safe to accept the statement and findings of the State veterinarians?

Dr. MOHLER. Yes, sir; and, as I say, we are doing that; we are accepting the State men's findings; we are accepting their appraisements and their tuberculin tests also. We are cooperating in the fullest sense of the word with the State officials and breeders in 45 out of the 48 States.

The CHAIRMAN. How many applications have you for inspection now?

Dr. MOHLER. There are over 3,200 applications that can not be taken care of. Your State has 241.

The CHAIRMAN. They are willing to enter into this agreement?

Dr. MOHLER. 3,200 herd owners have made applications already that can not be filled and they are coming in every day. Instead of completing this work for them, we will have to stop it.

The CHAIRMAN. Is any of the work done by the States entirely?

Dr. MOHLER. No, this is all cooperative. The breeders enter into a contract between the State and ourselves that they will take care of the herd in the manner approved by the State veterinarian and the Federal inspector.

The CHAIRMAN. Can you not cooperate with the States and the State make a certain number of inspections?

Dr. MOHLER. That is being done right along, every day. The State is divided into zones, some of which are under the supervision of State men and other zones are under a bureau man. Each accepts the work performed by the other, so there is no duplication of effort.

The CHAIRMAN. How many inspections have been made altogether during the year?

Dr. MOHLER. The number of herds under the supervision of the various States and the Federal Government is 21,447, which include 421,264 cattle. The number of herds that have already been accredited is 1,391, containing 36,205 cattle. In addition to these, there are 16,341 herds that have passed one successful test and are on the road to be accredited. They contain 232,847 cattle. There are now on the waiting list, to be tested, 3,257 herds, containing 80,184 cattle.

This work is being done by about 181 of the bureau's veterinarians in cooperation with almost the same number of State veterinarians and assistant State veterinarians, and they are scattered all over those 45 States in the various areas. We do not have a man from the bureau go into the same territory where the State has a man, but we try to cover the entire State with a certain number of our bureau men and a number of men that the State veterinarian supplies. There is no duplication of effort in any way.

Mr. McLAUGHLIN of Michigan. And the State can do it?

Dr. MOHLER. The State can do it, and we accept all the work the State men do and they accept all the work the Federal men do.

Mr. McLAUGHLIN of Michigan. If the State fails to do it, though, you send a man in there?

Dr. MOHLER. Yes, sir.

Mr. McLAUGHLIN of Michigan. Then the greater the neglect of the State to do its duty, the more responsibility rests on the Federal Government?

Dr. MOHLER. That is true, but they have already paid more and appropriated more money than the Federal Government has appropriated.

Mr. McLAUGHLIN of Michigan. Why shouldn't they?

Dr. MOHLER. I am simply stating the facts.

The CHAIRMAN. How many inspectors did you say you had?

Dr. MOHLER. About 180 at the present time.

The CHAIRMAN. How many in each State; how many in Iowa, for instance?

Dr. MOHLER. About 7 in Iowa. We have cut the the force down by 20 in nine different States during the last 30 days.

The CHAIRMAN. How many are there in Illinois?

Dr. MOHLER. There are about 8 in Illinois.

The CHAIRMAN. They average about four to a State?

Mr. TINCER. How many are there in Kansas?

Dr. MOHLER. There were six, but we had to take two men off.

Mr. RAINEY. As I gather it, the gist of the proposition is that Congress has appropriated a million and a half dollars for this work and limited you in operating expenses and the number of employees. You are now asking for an increase of a million dollars, about \$2,500,000, and you want that in a lump sum so that you will be able to have enough to go out and locate tuberculosis and you will not pay indemnities unless your inspectors locate the disease.

Dr. MOHLER. That is the point, but we can not locate the disease unless we have the inspectors, who may be termed detectives, to locate the trouble. And you may be paying just as much operating expenses to locate a healthy herd as to locate a diseased herd. If a herd is 100 per cent tuberculous, it costs the bureau no more to pay the operating expenses of the man to find that large herd of tuberculous cattle than if there were no tuberculosis at all in the herd.

The CHAIRMAN. If we omit that clause and make it all available for one purpose or the other, \$1,480,440 will be adequate? That is the estimate.

Dr. MOHLER. That is the department's estimate; yes, sir. These gentlemen have another proposition which Congressman Rainey just spoke of. There is nothing in the Book of Estimates about this \$2,500,000; that sum is what is presented there in the resolution. I do not want to get this confused in the record. What we are asking for in the Book of Estimates is the elimination of the phrase which limits the appropriation for operating expenses to only \$500,000, which is practically no more than what we had last year.

The CHAIRMAN. What was estimated by the bureau?

Dr. MOHLER. This year?

The CHAIRMAN. Yes.

Dr. MOHLER. Practically a million and a half dollars.

The CHAIRMAN. The bureau estimate was a million and a half? Was that cut by the Secretary?

Dr. MOHLER. \$1,480,440, the decrease being due to the transfer of \$19,560 in salaries to the statutory roll.

The CHAIRMAN. The Secretary allowed the bureau's estimate?

Dr. MOHLER. Yes, sir. The only difference is where some clerks were employed during the year and are now to be transferred from the lump-sum to the statutory roll, so it reduces—

The CHAIRMAN. I was trying to ascertain the amount needed to meet all your requirements.

Dr. MOHLER. That is the estimate, approximately one million and a half dollars.

Mr. TINCER. If it is changed in that way, it would enable you to have at least double or three times the number of veterinarians that you have now?

Dr. MOHLER. Not three times, but we could double the number.

The CHAIRMAN. You can only go as fast as the States go; you just keep pace with the States, do you not?

Dr. MOHLER. Yes, sir.

The CHAIRMAN. How many of your inspectors are devoting their time to the inspecting of animals for export and shipment to other States?

Dr. MOHLER. That comes under another provision here, under the provision for inspection and quarantine work. That is an entirely different proposition from this tuberculosis item which is for the purpose of the eradication of tuberculosis in herds in the United States. Our work on exports is done by the quarantine division and, as you know, we have inspected practically 11,000 dairy cattle to go to France in the first three months of this fiscal year. We had no money for that particular line of work, because we never exported dairy cattle before to Europe.

The CHAIRMAN. I mean shipping from one State to another or in interstate commerce?

Dr. MOHLER. That comes under this clause here.

The CHAIRMAN. That comes under this clause?

Dr. MOHLER. Yes, sir; but not the export.

The CHAIRMAN. How much of that are you doing?

Dr. MOHLER. We are doing a great deal. We have men at all the public stockyards to enforce the regulations about the interstate

shipments of dairy and breeding cattle. We have about 42 stockyards where that work is being done, and wherever the owners send in cattle to public stockyards we make the test free of charge. If we have to go around the country and make such a test, we charge the owner for the railway expenses and he has to put up the inspector at his home for the 36 hours required to make the tuberculosis test. All that work is being done under this appropriation of \$1,500,000.

The CHAIRMAN. It would be impossible for the department to respond to all the requests and applications for inspection for shipment in interstate commerce, would it not?

Dr. MOHLER. That is what Congressman Tincher just said. We are only doing a certain portion of that; the rest of it is being left to the States to do and the States are appointing their best local practitioners, approved by the State and O. K'd by the Government, and then the other States accept these tests. And the herd of this man the Congressman just spoke about, the herd of that man you referred to in your neighborhood, can go to any other State when accompanied by this approved veterinarian's health certificate.

The CHAIRMAN. Are you extending that service?

Dr. MOHLER. Yes, sir.

The CHAIRMAN. To what extent?

Dr. MOHLER. We are covering every animal that is intended to go into another State for breeding or dairy purposes.

The CHAIRMAN. The purpose of this act is to exterminate the disease of tuberculosis and to get rid of it just as quickly as we can. I do not think anybody would stop at a few million dollars of expenditure if it can be exterminated; but when you go out in the field to inspect herds for export or interstate shipment, that is a different thing. I have been engaged in shipping for a number of years and I have never thought of asking the Government to inspect my herd or a carload of cattle when shipping to another State.

Dr. MOHLER. No, sir, we are not doing that.

The CHAIRMAN. We ought to leave a little bit to the States and to the shipper.

Dr. MOHLER. We are not doing that except at the public stockyards and for special shipments. For instance, if a breeder wishes to make a shipment to Canada, we go to his farm and he pays the traveling expenses of our man and puts him up overnight, because Canada requires a Federal certificate. And we do that for you in Iowa when you are going to ship to Minnesota, because Minnesota will not accept the Iowa State certificate.

The CHAIRMAN. They do not accept the State certificate?

Dr. MOHLER. No, sir; and we do not like it, because it is placing a great burden on us and is not getting anywhere, but it costs us both money and time.

The CHAIRMAN. Now, to be frank, I think the State of Iowa and every other State should provide the inspection. If they have not the necessary law, they should pass it. If they have not proper veterinarians, they should get them.

Dr. MOHLER. I am just referring to the exceptions. The regular plan and rule is for our men to be at the public stockyards to test for tuberculosis the cattle that are going to a breeder or dairyman in another State.

The CHAIRMAN. I agree with you on that, but I do not think it is possible to do it on every farm in every State.

Dr. MOHLER. We are not doing it except where we are obliged to do it by State laws, and we do not like to do it.

The CHAIRMAN. The inspectors employed in Iowa are located in Sioux City?

Dr. MOHLER. No, sir; the inspector in charge is Dr. Thompson, located at Des Moines, and the other men are scattered over the State. When the State sends their man we do not send our man; we are all cooperating.

Mr. McLAUGHLIN of Michigan. What I am speaking about is going out in a State and inspecting private herds, and you said you were not doing that unless you were compelled to do so by State law.

Dr. MOHLER. That is right.

Mr. McLAUGHLIN of Michigan. What do you mean by that?

Dr. MOHLER. I mean, as Mr. Smith has stated, certain States will not accept cattle from certain other States without a Federal certificate.

Mr. McLAUGHLIN of Michigan. Why?

Dr. MOHLER. Because the certificates that were coming with cattle from these tabooed States were considered to be of no value.

Mr. McLAUGHLIN of Michigan. The State inspectors have not been efficient in doing their duty; they have been dishonest?

Dr. MOHLER. I am not in a position to say that, but that is the interpretation of the other States. Illinois is not now but it was in this position several years ago, and a number of the western States would not take any cattle from Illinois without a Federal certificate. Prof. Woods just tells me that Maryland will not accept cattle from New York unless a Federal inspector has made the tuberculin test.

Mr. McLAUGHLIN of Michigan. Why?

Dr. MOHLER. I do not know. You will have to ask Prof. Woods about that.

The CHAIRMAN. Thank you, Dr. Mohler. We will hear Prof. Woods.

Mr. McLAUGHLIN of Michigan. The men in New York have not been doing their duty; they have not been honest, perhaps.

STATEMENT OF DR. ALBERT F. WOODS, PRESIDENT, MARYLAND STATE COLLEGE.

Dr. WOODS. That is the reason.

Mr. McLAUGHLIN of Michigan. If the State has the Federal Government to make the test and does not need to spend the money, does not that lead to more dishonesty among the States and the more Federal money is necessary?

Dr. WOODS. Our experience is the State is very loath indeed to have this quarantine issued against the State veterinarians. We had it issued against us once before we got our service up to the standard, and we hastily got it up to the standard, and it was only operative for about 30 days. Now we have issued it against New York, operative day before yesterday, simply because the New York State veterinarian service has been shipping plugged animals into Maryland. We have spent a lot of money to clean up the State of

Maryland, and we can not afford to have those animals shipped down here and reinfect our pure-bred herds which are now clean, and consequently we have issued this quarantine. New York, probably within 60 days, will find out these veterinarians who have been doing this sort of thing and will eliminate them from their list, and it is one of the most valuable educational methods to clean up the veterinarians as well as the herds that I know of.

Mr. McLAUGHLIN of Michigan. I do not see how you are going to educate them if, when you refuse to accept their dishonesty, the Government goes in and does the work for them. It seems to me it would be almost to the interest of the State to be dishonest, in order to have the Federal Government step in and do this work.

Dr. Woods. The State can not afford to have that stigma upon the reputation of their service, and the fact is they do clean up as soon as a step of this kind is taken.

Mr. McLAUGHLIN of Michigan. Then, when the State realizes that, it gets to the front and does its own work, does it?

Dr. Woods. Very largely; yes.

Mr. TINCHER. I do not think you could appropriate enough money to make New York be honest.

Dr. Woods. It would be a very serious thing if it would not be possible to transport animals from New York to our breeding herds. There must be some means of doing that. We will only accept Federal veterinarian inspection up to the time New York gets satisfactory inspectors.

The CHAIRMAN. What would you say to charging a fee for making the Federal inspection?

Dr. Woods. I think that would be all right, and I would like to say here—

The CHAIRMAN. In addition or outside of the regular salary men?

Dr. Woods. Yes.

The CHAIRMAN. Of course, we should provide for men at these large shipping points, but, if it is necessary to have a man for every locality, I take it that the Federal Government could not afford to hire men to place in every one of the 2,900 counties, and I take it a county is about as big a territory as any one man can cover.

Dr. Woods. It is absolutely necessary for all these pure-bred breeders to import animals from other States. They have to keep exchanging bulls, selling and buying, to keep their blood lines up and, in doing that, even after you get cleaned up, from those States that are not clean they are constantly introducing the disease, and for that reason we feel that some greater effort than the State has the power to put forth ought to be made to clean up the breeding herds, as Mr. Smith has said.

The CHAIRMAN. Inspection ought to be provided, there is no question about that.

Dr. Woods. Our breeders would very much rather have a Federal man come in there and do the inspecting and cut out the indemnity entirely. The indemnity is hardly worth mentioning compared with the losses that a herd will sustain if they have to destroy 10 or 15 animals worth anywhere from \$500 to \$5,000 apiece.

The CHAIRMAN. Do you think we could make headway in eradicating tuberculosis without the indemnity provision?

Dr. Woods. I do not think we would have made any beginning on it, but the thing is going now pretty well and my own opinion is if you have to cut out anywhere, cut out the indemnity. I do not know about the experience of other men, but that is true in our State. In Maryland, if you have to cut off anything, cut off the indemnity; we will stand the loss. But we do want to know, when we stand the expense, that we are through, and we do not want some plugging veterinarian, for 50 cents, to come and plug a cow so she won't react, and to send us an animal from some other State that we can not depend upon. For that reason we have issued this quarantine against New York and won't accept any animal from New York State, unless she has a Government certificate, until they clean up.

Mr. McLAUGHLIN of Michigan. Two years ago we had quite a controversy here as to the amount of the appropriation, whether it ought to be \$250,000 or \$500,000. I think I have the amounts right. We were told by the Department of Agriculture that there was no need whatever of increasing the amount of the appropriation to \$500,000 unless measures were taken to provide an indemnity; there was no need of doing it at all unless we provided an indemnity.

Dr. Woods. I understand there is a constitutional limitation upon the destruction of property without paying for it, but I do not know why, if the owner agrees to stand the loss, that would not cover the constitutional prohibition.

Mr. McLAUGHLIN of Michigan. And following that very discussion in the House and Senate, over the question whether or not this amount should be increased from \$250,000 to \$500,000, the Senate added an amendment, a crudely drawn affair, to provide for indemnities; and the amount was increased under the statement from the officials of the Department of Agriculture that there was no need of increasing the amount unless indemnities were provided.

Dr. Woods. That was so 10 years ago, but I believe the breeders have realized the great importance of this move, and while they of course want the indemnity, they want the skilled supervision more than the indemnity. That is my opinion.

The CHAIRMAN. This matter was under consideration for a number of years, appropriations were withheld, a number of the members of the committee contended that there was no use appropriating large sums of money unless we provided a definite plan that would prove effective. We came to the conclusion the only effective way of doing it was to provide indemnities so we adopted the same plan as in the foot-and-mouth disease.

Dr. Woods. I do not want to be misunderstood. I believe the system you have is the most effective system that could have been devised to get this thing done. The breeders would not permit our men to come on their farms, and every herdsman of blooded cattle would say I am honestly in favor of this thing, of cleaning up the herd, but I can not afford to stand the entire loss.

The CHAIRMAN. Thank you, Dr. Woods. Now the question is, how far do we need to go; my question is how would it do to provide a part-fee policy? It seems impossible for us to provide inspection and testing for every farm—to take care of every shipment. What have you to say as to a fee system?

FURTHER STATEMENT OF DR. JOHN R. MOHLER, CHIEF OF THE BUREAU OF ANIMAL INDUSTRY, DEPARTMENT OF AGRICULTURE.

Dr. MOHLER. I would like to say that what Mr. McLaughlin stated is absolutely true, namely, that this committee of the House, in 1917, did propose an appropriation of \$250,000 for the eradication of tuberculosis, but it had no indemnity feature in it at all.

The CHAIRMAN. I made the fight for it myself.

Dr. MOHLER. When asked about the indemnity, the Department of Agriculture's attitude was, if indemnity was to be allowed, \$250,000 would not be sufficient, but that \$500,000 would be needed if indemnities were to be included. The House bill provided for \$250,000, but did not include any provision for indemnities.

The CHAIRMAN. That was the first appropriation?

Dr. MOHLER. Yes, sir.

The CHAIRMAN. Then we decided on this plan and gave you \$500,000, then we jumped to a million and a half. The question is, How much is required now?

Mr. TINCHER. You stated there were 3,200 applications for inspection?

Dr. MOHLER. Yes, sir.

Mr. TINCHER. Do you not know, as a matter of fact, that that is only a beginning, that those 3,200 applicants have reported to their neighbors that the fund is exhausted and they can not have it, and if it was possible for the Government to give the inspection, there would probably be an aggregate of 10,000 applications right now instead of 3,200?

Dr. MOHLER. I would not be surprised at all, Mr. Tinchler. This thing is growing by leaps and bounds and it is getting far beyond us. I want to say here, with reference to the possibility of eradicating tuberculosis, that I would like to go on record as asserting that tuberculosis can be eradicated in five-eighths of the United States in the next 10 years. I believe that in the State of Mississippi, which Mr. Candler represents, the disease can be eradicated in 10 years, and in a great many of the other Southeastern States as well. In Georgia, which Mr. Lee represents, I would like to have a contract to eradicate tuberculosis in 10 years. But when you come to some of those badly infected Northern and Central States, which I do not care to mention, I would not want to take a contract even for 50 years. I believe we should take part of the country and exterminate the disease, and we could exterminate it in a relatively short period of time in certain sections. Then we could put a quarantine on or a barrier around the badly infected States and tell them to enforce stringent inter and intra county restrictions on the movement of tuberculous cattle, if they wished our cooperation. But we have to be the leaders in this as well as in every other thing, like hog cholera and tick eradication. Where would the States be to-day if we had allowed these matters to take their own course?

The CHAIRMAN. Why is it possible in one State and not in another?

Dr. MOHLER. Because in one State they have a 33 per cent infection, where it has existed for years and years, and in other States, like Georgia and Mississippi, they have kept their native stock prac-

tically free from tuberculosis and only get the disease by buying pure-bred bulls and females from these badly infected States.

The CHAIRMAN. The further north you go the longer the cattle are housed throughout the year, and as a result the disease is more prevalent among them.

Dr. MOHLER. That is very true, and some of the Northern States are cleaner than other Northern States.

The CHAIRMAN. What do you say as to a fee system?

Dr. MOHLER. I am opposed to a fee system.

The CHAIRMAN. In conjunction with what we now have?

Dr. MOHLER. I am opposed to a fee system at all. I think it will be entirely unsatisfactory.

Mr. McLAUGHLIN of Michigan. There was a bill before the House Monday for the District of Columbia, providing for the inspection of all weighing apparatus of different kinds in all the stores and the measuring of containers and so on to see that they were exactly in compliance with the law; and it was urged that a fee be charged by the Federal inspector each time he made the inspection. The chairman of the committee, Mr. Mapes, read a long statement from the sealer of weights and measures of the District of Columbia, as I remember his title, against the fee system, claiming that it led to fraud and collusion between the inspector and the merchant whose machines were to be inspected, and that after a trial over a term of years the fee system had not been effective, and there was fraud and dissatisfaction, etc. What do you think of that?

Dr. MOHLER. That is very possible. You are running right into the personal element when you commence to allow an official to collect fees, and you are also running against the private practitioner who has to make his bread and butter in that same territory. The plan of the bureau is to keep abreast of this constantly growing list of requests, but to let these accredited herds go back to the practitioner in the locality where the herd is situated after they have been under Federal and State supervision for two years. And that is going to help solve the problem; we will turn over these accredited herds to the private practitioners with the idea that the local veterinarians will keep them clean and allow us to go into new fields.

Mr. McLAUGHLIN of Michigan. The fact that the inspection is optional with the owner of the herd, you might think he would not consent to have his herd examined and tested and run the risk of having it condemned; but you think he might consent to it if he had some assurance on the side, in a dishonest way, that he would give him a clear certificate if he paid the money?

Dr. MOHLER. That is a possibility.

Mr. McLAUGHLIN of Michigan. You think that would grow up under a fee system?

Dr. MOHLER. I am afraid it would. The personal objection I see to it is the fact that we will go right into the territory where the practitioners are located and compete with them by testing these cattle for a small fee. With the method I am speaking about, the accredited herd would only stay under Federal and State supervision for two years (but, of course, we would have the right to go in at any time and make a check test), and then it would be turned over to the practitioner in that community.

Mr. McLAUGHLIN of Michigan. The practitioner is in private practice and he makes a charge, I suppose?

Dr. MOHLER. Yes.

Mr. McLAUGHLIN of Michigan. Where State inspectors do the inspecting, do you know of any State where a fee is required?

Dr. MOHLER. No, sir; not with the tuberculin test, unless it is South Dakota. I know in inspecting for certain other infections—for scabies, glanders, etc.—a few States have a fee system, and there is a great deal of criticism of that method. I think that South Dakota has a fee system for tuberculosis inspection at the Sioux City stockyards. That has caused a great deal of criticism. In fact, we sent Federal inspectors to do the testing at Sioux City for that very reason, because we heard that the man was going around looking through the rails of the stockyards and the slats of the stock cars and then making out health certificates without applying any real tests. There is one of the advantages of this accredited herd proposition, because all of the States will take cattle from accredited herds without any further test and we will allow cattle from any accredited herd to go to any State in the Union, and Canada will also accept these cattle without additional tests. So there is a big advantage in making interstate shipments as a result of having a large number of accredited herds.

Mr. McLAUGHLIN of Michigan. This statement that one State will not accept a certificate by a State official and as to another State it will accept the certificate of the State official does not appeal to me. It is evident that where a State is honest and its officials have been doing good work the certificate is accepted, but where they have failed to do their duty and where their officials have not been on the square their certificate is not accepted. So that if the Government takes up that work and assumes to make the inspection in every State where the local inspectors have not done their duty it is practically putting a premium on inefficiency and crooked work. If one State can inspect its herds in such a way that another State will accept its certificate all of them can be brought up to the same standard.

Dr. MOHLER. It might seem to work out that way, Mr. McLaughlin, but in reality it does not. Wisconsin has had seven States at various times refuse to take any charts from the practitioners of Wisconsin but that number has been reduced greatly. I do not know now whether there are more than one or two. Illinois was in the same position. There were four or five of the western States that refused to take any certificates from Illinois men. I do not know any that will now refuse to take the certificates from Illinois. This case Prof. Woods just spoke of is a new case to me. I am not surprised, however, from what information I have had from Maryland breeders. I do not think however that this deplorable condition is growing; I believe it is being greatly reduced. And I think what New York will do is to try to comply promptly with the requirements of the Maryland State officials so that they can ship anywhere on their veterinarians certificates.

Mr. TINCHER. What you are asking for in this appropriation is to make the \$800,000 that was not used in paying indemnities last year, available for administrative purposes for the coming year and carrying practically the same appropriation we carried last year without

that restriction? Which will give you practically \$1,500,000 more for administrative purposes for 1921 than you had in 1920; is that right?

Dr. MOHLER. Yes, sir, practically so.

Mr. TINCHER. That would be, then, \$1,500,000 for administrative purposes. And what was it you had in 1920 for administrative purposes?

Dr. MOHLER. The whole thing is a million and a half dollars and we are asking now that we be given the privilege of using that money as we see fit.

Mr. TINCHER. That would give you four times as much in 1921 as you had in 1920?

Dr. MOHLER. No, because we got \$500,000 for operating expenses this year.

Mr. TINCHER. That is what I say, and then you have \$800,000 of this year's appropriation to be made available for next year?

Dr. MOHLER. What we are trying to do is to correct this condition right now. We are not asking that this \$800,000 be carried over to 1921; what we want is to have a joint resolution of the House and Senate making available the indemnity appropriation of the present fiscal year for this year's operating expenses; otherwise, we are going to have to transfer or dismiss 100 inspectors and we are going to have to disappoint most of these 3,200 breeders.

The CHAIRMAN. Are we to understand, then, that \$1,300,000 is to be used for testing and only \$200,000 for indemnities?

Dr. MOHLER. In this item here?

The CHAIRMAN. Yes.

Dr. MOHLER. No, sir.

The CHAIRMAN. Now, this \$800,000 would mean that you have \$1,000,000—

Dr. MOHLER. Yes; but we are going to expend, the way we have been going, only \$200,000 of that million dollars for indemnities which means \$800,000 will be turned back into the Treasury. I am not objecting to turning money back into the Treasury; I think it is a good thing; but we are given credit for having one million and a half for tuberculosis eradication, and the funds are tied up in such a way that we are not going to be able to spend more than \$700,000 of it.

The CHAIRMAN. But in the note here it states that you are spending \$35,000 a month.

Dr. MOHLER. That is only for the month of July.

The CHAIRMAN. How much do you expect to spend for the testing?

Dr. MOHLER. We will spend, at the rate it is going now, not \$35,000 a month, which was true in July, but \$600,000 for the year, since \$198,000 have been already spent in the first four months.

Mr. McLAUGHLIN of Michigan. \$50,000 a month?

Dr. MOHLER. Yes; it is at that rate, or \$600,000 for the 12 months, which is \$100,000 more than we can expend. The result will be that we will have to cut off 100 inspectors between now and the 1st of July unless something is done to remedy that condition.

Mr. McLAUGHLIN of Michigan. Then you only want \$100,000 more between now and the 1st of July?

Dr. MOHLER. Yes, sir; if we must keep within our present limits.

The CHAIRMAN. What you want is \$100,000 more between now and the 1st of July?

Dr. MOHLER. What I want is to eliminate this proviso that limits the appropriation for operating expenses to only \$500,000.

The CHAIRMAN. But that is a question for us to determine, and I take it Congress or the committee does not care to change that policy.

Dr. MOHLER. That is up to you, gentlemen; but you are asking what we want.

The CHAIRMAN. There is no reason why we should make \$800,000 available if only \$100,000 is required.

Dr. MOHLER. It will require \$100,000 to make up the deficit that is going to occur if we keep going at the present rate. We dismissed 20 men on the 1st day of November in order to cut down the expenses.

The CHAIRMAN. Then \$600,000 is required, and that is all that will be necessary?

Dr. MOHLER. No, sir; that is not all that will be necessary.

The CHAIRMAN. Just how much will be required?

Dr. MOHLER. What I would like to see done is to have this proviso eliminated this year by a joint resolution, so that we may use as much of the million-dollar indemnity appropriation as we may need for operating expenses. We won't use any more than we have to use.

The CHAIRMAN. Personally I want to give you every cent that is required, but it is not necessary to appropriate more than is required. If you will state the amount necessary for the testing and administration, so far as I am concerned I am willing to give it to you, but not one cent more.

Dr. MOHLER. To do that, I will go back to the figures which a year ago the other branch of Congress, the Senate, gave favorable consideration to, and these are \$800,000 for operating expenses and \$700,000 for indemnities. At the rate we are going this year, under present conditions, we won't spend near that amount in indemnities.

Mr. McLAUGHLIN of Michigan. It will only be necessary to release \$300,000 for the rest of the year?

Dr. MOHLER. That is right.

The CHAIRMAN. But you said you would only spend \$600,000.

Dr. MOHLER. No, sir; I say we have spent \$198,000 the first four months of this fiscal year. For July we spent only \$35,000. That leaves \$163,000 for the other three months. So that we were spending more than \$54,000 a month for the last three months.

Mr. HEFLIN. You state that one State will not accept the certificate of inspection from another State. Could you not help that work by cooperating with the State authorities in this way, by having inspectors appointed that you could give a certificate to of character and ability? For instance, let your department give to the State inspector a certificate reading like this: "This man's ability and character is such that an inspection by him will be accepted by us and should be accepted by all parties concerned."

Dr. MOHLER. Mr. Heflin, we do that now. We have a number of people in New York State whose certificates we will accept for inter-state shipments.

Mr. HEFLIN. Do they have any certificate they can show publicly?

Dr. MOHLER. Yes, sir; they do.

Mr. HEFLIN. From you?

Dr. MOHLER. Yes, sir; from us. We approve of the men that are approved by the State people. As I say, I do not know the case Prof. Woods referred to. It may be one of the men we have approved; maybe not. But if we find this man is one we have approved or if we find a man who is not doing the work according to our methods, we will remove him, and we remove our own men sometimes. We do not have an infallible system ourselves. Our men are not all perfect. I am far from perfect myself. But we remove our own men when we find they are not working in accordance with our methods. And if we find it is a State man, we drop him from the list. This case that Prof. Woods referred to is where a man is evidently falling down; whether he is on our list I do not know. We have between 6,000 and 7,000 men in the 48 States approved by the State officials, and who are approved by us.

The CHAIRMAN. They inspect?

Dr. MOHLER. They inspect.

The CHAIRMAN. Do they charge a fee?

Dr. MOHLER. They charge a fee for inspecting interstate shipments from one State to another. There are almost 7,000 of those men cooperating with the bureau.

The CHAIRMAN. Their certificates are accepted?

Dr. MOHLER. Minnesota does not take them from those men we approve in your State, and Maryland won't take them from the men we approve in New York now. That is the present condition.

Dr. WOODS. There are one or two or maybe three or four of those men that the Government has approved that we have not gotten spotted yet. But this procedure will stop their doing dishonest work (and we have the evidence here) and they will be removed just as soon as we find out who they are.

The CHAIRMAN. They give the veterinarian more money to influence him?

Dr. WOODS. Here is a veterinarian and here is a man who wants his herd inspected. The herd owner wants his cattle to pass, and the veterinarian thinks it is all nonsense anyway, and he says, "I can take care of that for you." It is only a case of locating those dishonest assistants or locating those dishonest practitioners.

Mr. TINCHER. Take our State live-stock inspector: If he recommends a veterinarian in Kansas to you for a certificate, you give him a certificate?

Dr. MOHLER. No, sir; not in every case. Of course, in your State there are some graduates from nonrecognized colleges and when one of these men has been recommended we say to Mr. Mercer "This man is not acceptable to us."

Mr. TINCHER. He would not recommend anybody but a graduate?

Dr. MOHLER. They have to recommend somebody we will accept, and sometimes they recommend a man from a college not approved by the United States Civil Service Commission, the War Department, or the Department of Agriculture. We try to accommodate Kansas, because they have that big western territory, where they do not have very many veterinary practitioners. Some of these practitioners are from one of these nonrecognized schools, and we say to

those men we will allow you to take an examination and if you pass the examination, solely on the subject of tuberculosis, we will accept you for interstate testing.

Mr. TINCER. I will ask you if it is not true that you know it to be Dr. Mercer's practice that he does not appoint a man a State man unless he is able to get you to approve him as a Government man?

Dr. HOHLER. Yes, sir; for regular State work. However, there are one or two fellows he thinks very kindly of, close personal friends of his, that we have not approved for interstate testing.

STATEMENT OF MR. HOWARD R. SMITH, LIVE STOCK COMMISSIONER OF THE CHICAGO LIVE STOCK EXCHANGE—Continued.

The CHAIRMAN. Dr. Smith, have you anything else to say?

Mr. SMITH. I just want to say, Mr. Chairman, that to my knowledge the States are making an effort to secure high-class men for this test work. In our State, in Illinois, we have recently changed the law. I think this will answer your question, Mr. McLaughlin. Heretofore, any man who passed the examination could become an assistant veterinarian. That examination does not include honesty; it is purely a technical examination. The result has been we have had a number of men in Illinois who have not been honest, as assistant State veterinarians, and the Illinois Legislature, last winter, changed the law and those men must now be appointed by the State veterinarian and the State veterinarian has authority to cancel the license of any man who proves dishonest. That is going to give us a good honest lot of men in Illinois.

Mr. McLAUGHLIN of Michigan. Is there any provision for punishment?

Mr. SMITH. He is simply dropped from the list and can do no more testing; that is all. He is taboo from any further testing.

Mr. McLAUGHLIN of Michigan. Is his license taken away from him?

Mr. SMITH. I do not know whether his license is taken away from him, but he is no longer an assistant State veterinarian. I think the States are all making an effort to meet this standard. In regard to this matter of—

Mr. McLAUGHLIN of Michigan. You said that would answer the question I asked?

Mr. SMITH. You mentioned the fact the State men are dishonest and the very fact the Government would do that work for them encouraged dishonesty. I believe that was the question. That is true until the States get a better lot of men, and I just want to say Illinois is endeavoring to get a better lot of men. That is all. I think that is true of other States, also. In regard to this other matter, I just want to call attention to a statement that was made and passed unanimously by the representatives of 12 national cattle-breeding associations in Chicago last week:

In view of recent orders from the United States Bureau of Animal Industry discontinuing the services of a number of field inspectors engaged in tuberculosis eradication work throughout the country, which action we find upon inquiry was made necessary because of a lack of funds for the payment of operating expenses, we, the representatives of the 12 American cattle-breeding associations—

That takes in all of the important associations, the Shorthorn, Hereford, Guernsey, Jersey, Holstein, and so on—

in convention assembled at Chicago, Ill., December 1, 1919, urge Congress to make some provision whereby the United States Bureau of Animal Industry may be empowered to draw on the indemnity fund for the payment of operating expenses in order that the work of tuberculosis eradication may be continued without interruption through the present fiscal year.

That is all we are asking for, is to draw on the indemnity fund for paying operating expenses.

Now, one of our men has to leave early and I would like to have a statement from Mr. Frank Harding, one of the best-known short-horn breeders in the United States. He is also secretary of the American Shorthorn Breeders' Association.

The CHAIRMAN. We will be pleased to hear Mr. Harding.

STATEMENT OF MR. FRANK HARDING, SECRETARY OF THE AMERICAN SHORT-HORN BREEDERS' ASSOCIATION.

MR. HARDING. Mr. Chairman and gentlemen, I will take a short time. As Mr. Smith has stated, I have a valuable herd of short-horns in both Wisconsin and Illinois, whose veterinarians have not been very favorably spoken of here to-day, and I am secretary of the American Short-Horn Breeders' Association. I would like to present what I believe is the general view of our breeders, of the American Short-Horn Breeders' Association, that tuberculosis eradication is very important and they approve of the work that has been done. And they have in mind this large waiting list of herds that are anxious to have free tests—accredited herds—and they are also advised without further funds this work will have to be curtailed, and they are very much interested in its going on and this arrangement made, if possible, to make this indemnity fund or such part of it as is needed available for inspection. They also believe that this work is of national interest.

Figures have been submitted to you that show, through the work of the department and the States cooperating, the reduction that has been made in the number of tubercular cattle in this country. The breeders of the country have been educated by this work that has been done. They possibly had different views and recommendations when this fund was provided, as it was, that more would be used for immunity and less for inspection; but they are so pleased with the work that they are anxious it should go on. It is naturally important and if it saves the cattle breeders of the country a large amount of money through lessened condemnations it is along the line of conservation and the lowering of the costs of living.

There is another point I would like to mention, because I have been in close touch with the sentiment, at least, and that is our export trade. The American Short-Horn Breeders' Association sent me to South American countries four years ago, because I told them I believed I could present points down there why they should buy our cattle as against Great Britain; that at least they would consider and give us a trial; and the result has been that since my return, although two years' interruption occurred on account of the war, we have sent over 200 head of shorthorn cattle to Argentina,

Uruguay, and Brazil. These cattle have all been Federal tested. To my knowledge there have only been two reactors out of that large number that I have personally supervised and sent through our association. Now, the results of shipments from foreign countries are very different than the shipments from this country, and the sentiment is getting strong in South American countries that they can come to North America and get clean cattle. We are able, through the results we have made in shipping pure-bred cattle to these South American countries, to insure them against the retest which is required down there. They do not accept the test of any country in the world; they only accept their own test after the arrival of the cattle and we are able, after the good results we have secured on the cattle shipped from the United States, to get a rate of 8 per cent.

Three per cent of that rate, approximately, is to cover the risks of transportation and the other 5 per cent the risk of death from any cause whatever, including reactions to the tuberculosis test, on the retest that is demanded by law in those countries. By comparison it is less than half and in some cases one-third of the interest rate charge from any other country. And that is the class of cattle that are wanted in South American countries.

I just thought that was a point worthy of bringing up, that if we want to build up our North American trade in those South American countries, which is possibly of advantage to all of our citizens in the way of export trade, the sooner we can get a practically free country, as far as bovine tuberculosis is concerned, the more of that trade we will secure.

The CHAIRMAN. When you speak about an accredited herd, that applies to those who enter into an agreement to slaughter or segregate?

Mr. HARDING. Yes, sir; or segregation. This meeting has been referred to in Chicago, on the 1st day of December, where representatives of these associations were present, and I have a resolution to present from these 12 registry associations. These registry associations were represented in this meeting by the three members of the board of directors of each association and the secretary of the association. The resolution reads:

As representatives of the 12 American cattle breeding associations, in convention assembled, Chicago, Ill., December 1, 1919, we indorse the action of the last Congress in providing an appropriation of \$1,500,000 for the eradication of tuberculosis—a disease that is causing a loss of millions of dollars annually for meat condemned and for cattle that die of tuberculosis on our farms.

We heartily approve and commend the plan adopted by the officials of the United States Bureau of Animal Industry cooperating with the State live stock sanitary officials in combatting this disease with the resulting that this menace which has heretofore been increasing in its destructiveness is now actually declining.

We urge that the present Congress provide liberally for the continuance of this important work, that a larger force of field inspectors may be appointed to take care of the increasing number of requests from breeders for the annual tuberculin testing of their entire herds, in the performance of which work the present force is inadequate.

We recommend and urge Congress to make an appropriation of \$2,500,000 annually, the entire fund to be available for the payment of either operating expenses or indemnities, as necessities may require, under the terms of the law now in force.

The eradication of tuberculosis will not only conserve for human consumption great quantities of beef and pork annually condemned as inedible, but will also encourage the production of both meat and dairy products.

That is signed by the representatives.

The CHAIRMAN. On what is the estimate of two and a half million which you speak of based—how did you arrive at that figure?

Mr. HARDING. That the work is increasing for the elimination of tuberculosis, and, to continue it all over the country, it would appear it is getting larger in volume and there is more work to be done.

Mr. JONES. That is for the organization expenses and indemnities?

Mr. HARDING. Yes, sir.

Mr. JONES. I thought you said your indemnity was down to about a minimum now. Is it getting less?

Mr. HARDING. I believe there is a possibility that some day the indemnities may increase. As Mr. Smith has stated to you, we have had the highest prices these last two or three years, this last year particularly, in the history of our particular business for beef cattle, and the people who are having their cattle condemned and are marketing them are not receiving any indemnity, from the fact that it is fully covered by the salvage value. The time may come when they won't receive as great an amount for salvage and more will be needed for indemnity. That is a conjecture and not a certainty, but the work is enlarging and the desire for accredited herds is increasing all the time.

The CHAIRMAN. Thank you, Mr. Harding.

Mr. TINCER. What is your post-office address, Mr. Harding?

Mr. HARDING. 13 Drexell Park Avenue, Chicago, Ill.

Mr. SMITH. I would like to have a word from Mr. A. B. Cook, president of the American Hereford Breeders' Association. Mr. Cook is from Montana.

The CHAIRMAN. We are glad to hear Mr. Cook.

STATEMENT OF MR. A. B. COOK, PRESIDENT OF THE AMERICAN HEREFORD BREEDERS' ASSOCIATION.

Mr. COOK. Mr. Chairman, I do not think it is necessary to take up the time of this committee. I think that what has been done in the last two years proves that this is a very necessary work, and I know that the Hereford breeders feel that the department has accomplished wonderful results, and we do not think they should be hampered for the want of enough money to carry it on satisfactorily.

The CHAIRMAN. Thank you, sir.

Mr. SMITH. Mr. Shoemaker would also like to say a word. He represents the American Guernsey Association on the executive committee.

The CHAIRMAN. We will be pleased to hear you, Mr. Shoemaker.

STATEMENT OF MR. S. M. SHOEMAKER, OF MARYLAND, REPRESENTING THE AMERICAN GUERNSEY ASSOCIATION.

Mr. SHOEMAKER. Mr. Chairman and gentlemen, I do not know that I can add anything to what has already been said. I can fully indorse everything Mr. Smith has said, and I feel that your idea of cutting

off the inspections would meet with the violent opposition of about 99 per cent of the breeders with whom I have come in contact. They would, unfortunately, rather give up the compensation.

The intelligence with which this work has been carried on by the department has secured the confidence of the breeders; and it is a real tribute to the work of that department, the way the people speak of it, "Why, a bureau man made the test; there is not any question about it."

Now, the economic value of this thing, I think, is enormous. Its educational value has been tremendous in Maryland. We needed for the Federal Government to come and tell our people that our State officials were right. We have a prominent man in the State, and I spent several years as a member of our State board of agriculture endeavoring to convince him that the tuberculosis test was a necessity and it was breeding high-class cattle. He eventually realized the Federal Government would not get behind this thing unless there was something to it, and he had his herd tested and he lost 56 out of 59, I think, and now he is the most ardent advocate of the tuberculosis test to-day that I know of; certainly one of them. As I say, its educational value is tremendous.

Now, it may be entirely reasonable to cut off the compensation in the near future; it may be wise to charge a fee for these tests after a while; but I do not believe it would be good policy to do either one at the present time. You are educating the public in a way that I do not suppose it could be done in years and years. You are getting results. The people are cleaning up their herds and they are under pledge to keep them clean. I believe it is accomplishing a valuable work, good financially to the country, and I believe you should give the department all the funds they need for these inspectors.

I do not know that I can answer any questions, but I will be very glad to give you any information I have.

The CHAIRMAN. You and I agree as to the inspection; we ought to provide for the inspection and testing. But the question is, How much is required and how can it best be accomplished?

Mr. SHOEMAKER. I do not believe you can improve on the work the way it is being handled at this time.

The CHAIRMAN. I believe it would be impracticable at this time to provide inspectors in 3,000 counties, and I believe a county is probably as large a territory as any one person could properly handle. It would take a tremendous amount of money to take care of that work. I do not think it would be possible for us to go to the extent of testing in every county. Possibly it may be done in connection with a fee system.

Mr. SHOEMAKER. I think eventually you can require a fee without retarding the work, but I do not believe it would be a wise thing to require that just now—just as it was necessary to provide the indemnity to get the work started.

The CHAIRMAN. The subject has not been discussed in the committee; it was merely my suggestion in order to get the ideas of the breeders and the department.

Mr. SHOEMAKER. Its educational effect—instead of its working as the gentleman suggested, that the States lay down because the Federal Government will do it, as a matter of fact it is educating the

veterinarians in the States to the fact that they can not do that sort of work. Incidentally, of course, States are bringing pressure on them.

The CHAIRMAN. Of course we ought to leave a little for the States to do. This country is pretty big, and we ought to divide it up between the States and not undertake to take charge of all the things to be done throughout the country; and it occurred to me the State should meet us half way.

Dr. MOHLER. Maryland is doing that, Mr. Chairman, very nicely.

The CHAIRMAN. I take it most of the States are.

Mr. SHOEMAKER. Yes, most of the States are; they are all co-operating in this kind of work.

Mr. SMITH. Before I call on Mr. Munn, who is president of the American Jersey Cattle Club, I wish to say I agree with Mr. Shoemaker that the time has not yet arrived for discontinuing indemnities. It would drive out of business our young breeders, I think you will agree with me, that the young man who hasn't a lot of money, if he should put his herd under the supervision of the State and Federal Government and say to those people "Test my cattle and slaughter the reactors," it would simply drive him out of business to the detriment of the whole country, and we are not ready for that yet. These well-to-do men, the experienced men, can stand that loss. but the young breeder, the man with limited means, we have to protect. We simply want to take off enough of that rough edge so that the young man can stand part of the loss without driving him out of business, and that is what we are doing. They are anxious to clean up, but they want the support of the Federal Government and State to that extent.

Mr. HUTCHINSON. I am confused in my figures Dr. Mohler, and I am asking for information. If I understand it, the appraisement of the thoroughbred is \$150, and of the grade, \$75?

Mr. SMITH. No.

The CHAIRMAN. That is the maximum?

Mr. HUTCHINSON. That is the maximum.

Mr. SMITH. The maximum paid by the Federal Government is \$50 for the pure bred. That is true. The Federal Government does not pay to exceed \$50 on a pure bred and \$25 on a grade.

The CHAIRMAN. That is not the total loss?

Mr. SMITH. That is not the total loss.

Mr. HUTCHINSON. The meat is worth something.?

Mr. SMITH. The meat is worth something.

Mr. HUTCHINSON. \$75 is pretty high salvage on a grade.

Mr. SMITH. No, the animal is appraised at its dairy value, as a rule, or breeding value. If the salvage is more, he gets nothing; but the salvage is never more.

Dr. MOHLER. The salvage per head has been \$41.20, that is the average.

Mr. HUTCHINSON. I understood Dr. Mohler to say the average was \$29 and some cents, the salvage paid by the Government.

Dr. MOHLER. That was not the salvage, that was the indemnity, \$29.19.

Mr. HUTCHINSON. The hide will bring more than that. The packers are getting \$19 for the hide.

Dr. MOHLER. The hide is included in the \$41.20 for the salvage. This \$29.19 is what the United States Treasury paid out per animal to the cattle owner. This \$29.19 indemnity is over and above the salvage of \$41.20 which the butcher gave the owner of the tuberculous animal as an average.

Mr. HUTCHINSON. I can not make my figures come together.

Mr. SMITH. I will now ask Mr. Munn to make a brief statement. Mr. Munn is president of the American Jersey Cattle Club and also president of the National Dairy Council from St. Paul, Minn.

The CHAIRMAN. Thank you, Mr. Shoemaker. We will hear Mr. Munn.

STATEMENT OF MR. M. D. MUNN, OF ST. PAUL, MINN., PRESIDENT OF THE AMERICAN JERSEY CATTLE CLUB.

Mr. MUNN. With reference to indemnities first, the States vary, as I understand it, in the method of payment. Minnesota, I think, is the most progressive State we have in connection with the accredited herd. I know so far as the breeders of our association are concerned we have more animals in accredited herds in Minnesota than in any State of the Union, and I think we have more animals of all breeds than any State of the Union in accredited herds. We have been kind of progressive out there in that respect. We do not pay anybody out there in accordance with what I understand from Dr. Mohler and Mr. Smith some States are paying. The law is there you can not exceed a certain amount, and \$150 is the limit for a pure-bred in Minnesota. The salvage does not go to the owner. If there is any salvage it is deducted from the allowance made by the State and the State gets the salvage.

To come back to the question of the appropriation, I do not know the relation which exists between the indemnity and the overhead and inspection, and I shall not say anything about that other than to suggest it seems to me the relation should be one which would carry on the work in the most satisfactory way; that is, you must have a salvage which will induce those who are not now having tests made of their herds to test.

And, of course, to get this test, you must have a sufficient fund to carry on the inspection work. And I agree with your chairman that there should be cooperation between the State and the Federal department in that respect. I do not think it is entirely wise to take it away from the State, because you will get more inaction in that way than in any other. At the same time, you have got to have the Federal Government lead in this work, and it seems to me it is largely a matter of food economics. And if you view it from that standpoint, our food comes from two sources; it comes from the land directly or indirectly and from the water, and most of it comes from the land; about 90 per cent from the land. And of the total expenditure for food, over 50 per cent comes from animals. Those are figures which are available and about which there can be no controversy. That means in protecting these herds, by the eradication of disease, you are conserving our sources of food supplies which, it seems to me, is the real question. Because if there is any lesson that has come home to us out of this war above any other, it is that the source of the food supply is the most vital thing we have to consider in our na-

tional welfare. And by eradicating a disease like tuberculosis and getting healthy herds, we are conserving our sources of food supply and the money expended by the Government in that respect is very well expended.

Whether it should be two and a half million, three million, or five million, I am not prepared to say. I am prepared to say this, however, that in my judgment you could not go too high so long as you can economically carry on the work. If \$2,500,000 will do that, \$2,500,000 it should be; if \$5,000,000 will do that, \$5,000,000 it should be. In other words, if we are going to clean up, let us clean up as rapidly as we can economically rather than to dribble along year after year. And if I had my say about it, it seems to me in fixing the amount, if I were a Member of Congress and on this committee, I would want to know how rapidly this work can be done and then I would fix the appropriation accordingly.

The CHAIRMAN: We are up against this situation: The heavy demands on the Treasury under the present condition, and the estimates of the department are less than \$1,500,000. The question is are we warranted in increasing that appropriation? What the committee would like to know is whether additional appropriations are absolutely required in excess of \$1,500,000. Judging from the action taken in the past, I feel sure the committee wants to meet the requirements in every respect.

Mr. MUNN. Those figures, of course, would have to come from the department. It seems to me \$2,500,000 could be very well expended.

The CHAIRMAN. But the department estimates less than a million and a half, or \$1,480,000.

Mr. MUNN. That is a matter of opinion. I look upon these expenditures a little differently, perhaps, than some. We speak in billions these days. Now, when we are conserving food, it seems to me that we should give consideration to the results rather than to dollars.

Dr. MOHLER. The Department of Agriculture does not say that is enough to do this work.

The CHAIRMAN. That is the estimate.

Dr. MOHLER. It is the estimate. In view of all the various activities of the department, and in view of the state of the National Treasury and other things, the Secretary of Agriculture did not feel that he should ask for any more than that million and a half. He is, of course, not opposed to any action which this committee might take for increasing any of the estimates if it so desires.

The CHAIRMAN. That is the figure arrived at, taking all the conditions into consideration?

Dr. MOHLER. Yes, sir; that is it. I did not want to have it understood that the department would object to an increase.

Mr. JONES. You understand the trouble the committee have in appropriating more than a department has asked for, do you not?

Dr. MOHLER. Mr. Lever wrote a letter to the Secretary last year on this \$500,000 basis, and asked the Secretary if he thought \$500,000 was enough, and the Secretary replied that he could spend effectively twice that much money.

Mr. JONES. I understand that, but I say you understand the trouble the committee would have in convincing Congress to appropriate more than was asked for.

Dr. MOHLER. They had no difficulty last year. They appropriated three times more than the Secretary asked for in that budget last year. The Secretary only asked for \$500,000 in the budget last year and your committee appropriated a million and a half. So that it is a similar condition this year to that which obtained last year.

Mr. TINCHER. Do you not suppose the Secretary took into consideration the fact, in making his estimates, that the receipts of the Government this year would probably be \$3,000,000,000 short?

Dr. MOHLER. That is one of the points I referred to, but I do not want it to be understood by the members of the committee that the Secretary has fixed that as enough money for tuberculosis eradication and would oppose an increase, if in your wisdom you considered it essential to the welfare of the live-stock industry.

Mr. McLAUGHLIN of Michigan. The chairman of the Committee on Appropriations and the chairman of the Committee on Ways and Means say we are facing an inevitable deficit of at least three billion and a half. A large part of that money comes from the income tax. The President has recommended the reduction of the income tax. He knows why, I suppose, but he has not told anybody. The Secretary of the Treasury has said there would be no deficit. He has said that more than once, that there would be no deficit, although these two chairmen have said there would be a deficit of about three billion and a half dollars. The Secretary of the Treasury has said, also, there would be no bond issue. He has said that several times that there would be no bond issue. When it was pointed out to him that some bond issue would be inevitable, "Oh," he said, "there will be a bond issue that the bankers will take." He said, "What I mean is, there will be no bond issue like the Liberty loan bond."

The CHAIRMAN. You should not say "bankers will take," but "bankers will have to take." That is the way to put it.

Mr. McLAUGHLIN of Michigan. So that this committee while it handles very small amounts of money, relatively, yet it is looked to to be as economical as it can be.

The CHAIRMAN. Personally, I believe this is the most important work the department has ever undertaken.

Dr. MOHLER. And the most popular

The CHAIRMAN. Personally, I would do everything I could to meet the situation. Thank you, Mr. Munn. We will now hear Mr. Brown.

FURTHER STATEMENT OF MR. EVERETT C. BROWN, PRESIDENT OF THE CHICAGO LIVE STOCK EXCHANGE AND OF THE NATIONAL EXCHANGE.

Mr. BROWN. If you will allow me to say a word, I think the live-stock commission men come in contact with the producers, and the farmers want this more than any other agency in any line of work. This work of the department is the most popular work that is being done by any branch of the Government, to my certain knowledge. I am speaking for the farmer direct.

I think the department estimated four years ago that the loss by tuberculosis as \$25,000,000 annually. Because of the appreciation in values of live stock, which has occurred during the war, I think we can estimate now, conservatively, that the loss by tuberculosis in food

animals will reach fully \$50,000,000. Now, if you can make an appropriation of two and a half million dollars that may save even \$10,000,000 to the producers of this country, it seems to me it is a corking good investment.

I want particularly to bring out one point that has developed in the controversy here this morning, and that is the Federal inspection on the point of confidence. I can speak for the 27 markets that I represent, and they are the largest live-stock markets in the country, that the Federal inspector has the entire confidence of the producer and the State inspector has not. That is true in all markets. I think any hampering or reduction of the inspectors under the supervision and employ of the Division of Meat Inspection, Bureau of Animal Industry, would be a great blow at the live-stock industry throughout the United States. I think this inspection is of much more importance than the indemnification. We feel, at the large markets particularly, great markets like St. Paul, Sioux City, Omaha, St. Joseph, Denver, and Chicago, where the man comes in to buy a carload of breeding heifers or cows, when they go out he wants the Federal inspector to inspect them, and it is under protest in most of those markets that he accepts State inspection. He does not want it. He wants to have Federal inspection. The Federal inspection has obtained the confidence of the country as against State inspection (more in the foot-and-mouth trouble), and, in a way, as compared with State inspection, that never can be eradicated in the mind of the producer, the farmers of the country. They felt that the Federal inspection was absolutely on the level; they felt that the State inspection was not. And I want to say, as representing these markets that I mentioned, and all the markets in this country, there is no bureau of the Government that has more the confidence of the people, every producer in this country, than the Bureau of Animal Industry has; and I hope there will be no restriction in any way on this inspection.

Mr. CANDLER. Then, you think it is more important to look after the extension of the inspection than to take care of the indemnity?

Mr. BROWN. I certainly do.

Mr. CANDLER. And if there is to be any enlargement of either one or the other, it should be along the line of inspection and not along the line of indemnity?

Mr. BROWN. I do, sir.

Mr. CANDLER. That the producers—the breeders—would prefer to stand the loss, to some extent at least, as far as indemnity is concerned rather than to have the inspection curtailed in any regard?

Mr. BROWN. I absolutely think so. And in saying that, I think I represent every live-stock market in the country. And I think it is borne out in the figures shown of the work in the last year, that the indemnification has not been drawn on the way the inspection has. The pure-bred breeders, the grade men, the fellow buying a load of cattle in a big market—he wants the inspection; he wants to be absolutely sure.

Mr. CANDLER. Then you would favor the recommendation urged by Dr. Mohler that the limitation be taken off, so that the department may be allowed to use its discretion largely in pursuing the further extension of the inspection work and only utilize what is

absolutely necessary for the indemnity work, in order to keep up the encouragement as to the development of grade herds and the development of grade cattle?

Mr. BROWN. I certainly would. I think the Bureau of Animal Industry has the confidence of the people, and there has been no reason why that confidence has been shaken; in fact, every year that confidence grows. Every farmer who knows anything about this work has the utmost confidence in the Federal inspection.

Mr. TINCHER. Does the average purchaser, say, of a carload of heifers like you speak of, keep the cattle there at the market for the 36 hours required for inspection?

Mr. BROWN. They have to under the Federal rules, Congressman; that is a requirement.

Mr. TINCHER. When those cattle are inspected, who takes the loss?

Mr. BROWN. He takes the loss; the animal is thrown back—has to be thrown back and killed.

Mr. TINCHER. The purchaser takes the loss, does he?

Mr. BROWN. Yes, sir.

Mr. TINCHER. No inspection of heifers shipped on to the open market is required?

Mr. BROWN. No. Where they are shipped on to the open market, that is not required; but where they go back into the country for breeding purposes, they are obliged to inspect; and they are followed back on to the farm, and when they come back on to the market. For instance, they are also inspected for commercial purposes, for feeding purposes, to see there is no shutting down out on the farm in the country. The department watches that, and the State inspectors also watch that.

Mr. TINCHER. When he buys cattle he has the Government man inspect them?

Mr. BROWN. Yes, sir.

Mr. TINCHER. And the point you make is he wants an authorized Federal inspector's certificate?

Mr. BROWN. Yes, sir.

Mr. TINCHER. That encourages him, if the market has that inspector, to pay the price for the heifers?

Mr. BROWN. Yes, sir; and when that animal goes back into the country, the farmer is so much more encouraged or pleased with that Federal inspection, than he is with the State inspection, that that herd is worth more money.

Mr. TINCHER. It would not take many inspectors to accommodate all the markets?

Mr. BROWN. No; it does not. The fact is that they are right there; they do not have to travel around the country; they are right there when that load or two, or three loads of stuff goes out, perhaps 10 or 15 or 20 a day, and they are right there where they inspect that stuff, and they do it right on the spot.

Mr. TINCHER. And there are not enough stock markets like you mention so that it would take any great number of inspectors?

Mr. BROWN. No. That inspection should not be hampered in any way, but should be increased. As Dr. Mohler could tell you, I think all of the markets now are asking for more inspectors, and that is the inspection that really counts more than anything else, because it is the dissemination of these animals all over this country.

Mr. TINCER. It is the inspection that costs less?

Mr. BROWN. Yes.

Mr. TINCER. And it is this traveling around over the country that represents the largest cost?

Mr. BROWN. Absolutely.

Mr. CANDLER. You believe it would be better to take away the limitation and leave it to the discretion of the department itself to utilize the funds where they will do the greatest good to this industry?

Mr. BROWN. Absolutely.

Mr. MUNN. Did you say the loss was stood by the man buying them?

Mr. BROWN. On the reactors.

Mr. MUNN. I do not want to throw discord in here. I agree with what has been said about the inspection where the animals go back to the shipping point, to the farm, but I can not say to do away with the indemnity and just have the inspection alone, because you could not reach the source of trouble that way. These animals come to the terminals and some go back again. They all come from the farms to the cities, and there is where the diseases start, and if you are going to eradicate it, you have to go back there to eradicate it. Of course, the city detects it by inspection at the yard and that is highly important to see that those animals do not get back on the farms. But if you are going to eradicate this disease, you have to inspect on the farm to do it, and you can not get condemnation on the farm if you have inspection alone, because the farmer won't allow his cattle to be inspected.

The CHAIRMAN. I think we all agree we should provide indemnity.

Mr. BROWN. I do not want to be understood as stating the inspection should stop altogether, but I want particularly to impress that this work at the terminal market, where the stock is going back to the country, is one of the most important.

Mr. MUNN. I think that is one of the most important where the stock is flowing back to the farm.

The CHAIRMAN. The question is on going onto the farms, visiting every farm, and making the inspection and test.

Mr. TINCER. It is conceded that the Government can not appropriate enough money to have complete inspection of all the cattle on all the farms. What would you think of this as a fixed definite policy: That we do furnish sufficient inspectors for the markets and let the States understand that the Federal Government is furnishing sufficient inspection for the markets and the owners of the cattle understand the Federal Government is furnishing sufficient inspection for the markets, and then, in order to insure good markets for their own cattle, the State will have to exercise care, and the owner of the cattle will have to exercise certain care or he will be up against the proposition that the Federal inspection in the market will actually reduce his price in view of the fact that the Federal Government can not defray the total expense. What would you think of that as a policy?

Mr. BROWN. That is the policy strongly favor and, as far as the appropriation will stand, I also hope they will cover the farms as much as they can. But I think we all agree that the inspection at

the great public markets where the stock is disseminated through the farming districts is of paramount importance. Of course, the pure-bred breeders may differ with me on that.

(Thereupon, at 12.40 p. m., the committee took a recess until 2 o'clock p. m.)

The committee reconvened, pursuant to the taking of the recess, at 2 o'clock p. m.

FURTHER STATEMENT OF MR. A. B. COOK, PRESIDENT OF THE AMERICAN HEREFORD BREEDERS' ASSOCIATION.

The CHAIRMAN. Please give your full name and address to the stenographer.

Mr. Cook. A. B. Cook, president of the American Hereford Breeders' Association, Helena, Mont.

I have been thinking of the appropriation that the department has asked for, which, as I understand it, is something like a million and a half of dollars. Am I right in that, Mr. Chairman?

The CHAIRMAN. Practically, in round numbers.

Mr. Cook. The States within the last year have appropriated something over \$2,200,000. The breeders met during the International Live Stock Show, and it was the unanimous opinion of all the breeders present that it would take more money than they had been getting for the department. As I understand it, there are a little over 3,000 herds that have requested to be tested, and you can not do it for want of money. I know that the word has been passed out throughout the country that it no use making application, because they have not the money to do it with. I think it is fair to say that if it was known that there was money there would be fully five times that amount, and maybe ten times. It is hard to estimate what it should be. I do not think that you should curtail Dr. Mohler and his department and shut him off on money to carry on this work. I do not think it is fair to the breeders. He certainly can not give us results unless he has the money to do it with, and I think it is up to this committee to try and get him that money; and I am positive from what he said this morning as to what his requirements would be, and the way it is increasing, that \$1,500,000 will not be sufficient.

The stockmen and the farmers pay a good part of the money that is raised in this country, and I think that we are entitled to that much recognition. We are paying a good part of this money and I think we are entitled to a little recognition that way. Thank you.

Mr. McLAUGHLIN of Michigan. You speak of the amount of money that the States have appropriated. Do you know how that is divided—how many States there are and the amounts that they have appropriated?

Mr. Cook. I think every State in the Union, with the exception of Colorado and Delaware, has appropriated. I have not the figures handy. I think that is right, Prof. Smith? We were discussing it this noon.

Mr. SMITH. I wrote to all the States.

Mr. Cook. You wrote to all the States and got the total amounts, and at that time what it would be. Two years ago in our discussions here it was asked if the States would do their parts, and almost

every member thought that his State would be willing to help out and go 50-50 on the proposition.

Dr. MOHLER. All of the States, with the exception of Arizona, Arkansas, Colorado, and Louisiana, have made appropriations, totaling \$2211,850. I have a list here of the different States.

Mr. McLAUGHLIN of Michigan. Is that for this particular work?

Dr. MOHLER. That is solely for tuberculosis eradication, in cooperation with the Federal Government. If you want to know about any particular State, I shall be pleased to tell you. Your State, Mr. McLaughlin, has appropriated \$100,000 per annum for this work.

Mr. McLAUGHLIN of Nebraska. What has Nebraska appropriated?

Dr. MOHLER. \$37,500 per annum.

Mr. MCKINLEY. How much is Illinois's appropriation?

Dr. MOHLER. Illinois, \$50,000 per annum.

Mr. JONES. Give us Pennsylvania. We will get them all in.

Dr. MOHLER. Pennsylvania, \$100,000 per annum.

Mr. McLAUGHLIN of Michigan. Have you a list that you can put in the record? Put in the whole thing.

Dr. MOHLER. Yes, sir; but I am going to speak on this later, and I thought I would put it in then.

The CHAIRMAN. Will you go on now, Doctor?

Dr. MOHLER. Would you not prefer to take care of these men first?

The CHAIRMAN. I understand that they have finished. Is there anybody else, Mr. Smith?

Mr. SMITH. I do not think so.

The CHAIRMAN. Thank you, Mr. Cook. Now, Mr. Kiernan.

STATEMENT OF MR. J. A. KIERNAN, CHIEF OF THE TUBERCULOSIS ERADICATION DIVISION, BUREAU OF ANIMAL INDUSTRY, DEPARTMENT OF AGRICULTURE.

Mr. KIERNAN. Gentleman, the tuberculin test was discovered in 1892. It has been in operation in this country from that time. Veterinarians in every State have been educated on the technique of the tuberculin test and have been applying it in every State.

Notwithstanding the efforts of the individual veterinarians and the individual live stock owners of the United States, however, tuberculosis has spread to practically every State in the United States. In the older dairy States it is more prevalent than it is in the newer States and in the range States; but, nevertheless, it is spreading from State to State, and the meat-inspection regulations show that for a period of 10 years it was spreading among swine at the rate of 10 per cent a year, so that for 1918, out of every 40,000,000 swine slaughtered at the establishments where meat inspection was maintained practically 4,000,000 of those hogs were affected with tuberculosis.

It became so alarming that the live stock owners of America said: "Something must be done to control and eradicate tuberculosis, if it can be eradicated, because if it goes on at the rate at which it has been progressing for the last 10 years, the time will come when all of our swine and also all of our beef herds in the United States will become affected with that thing."

The live stock owners came here to Congress two years ago, and Congress provided a small appropriation to carry on this work. There was no work done, from a national standpoint, up until two years ago. The only work that was done by the Federal Government up to that time was the eradication of tuberculosis from cattle in the District of Columbia. That work has been carried on for several years, and it has proven beyond a peradventure that tuberculosis can be eradicated from live stock. Here in the District they had, at the inception of the work, practically 19 per cent of the cattle infected, and each year the disease has been diminishing, and last year the official tests showed that very much less than 1 per cent of the total number of cattle in the District were affected with the disease; and the department feels confident that the disease will be totally eradicated from the District.

Now, with this appropriation that you made the Bureau of Animal Industry in its work started from the ground floor without any State cooperating, and in two years the work has been built up so that to-day there are 45 States engaged in this work, cooperating with the Department of Agriculture, and it has been mentioned here to-day, those States have appropriated an aggregate of \$2,200,000 for tuberculosis work this year. There were 33 States last winter where the legislatures met and considered tuberculosis work, and there were only two of those States that did not make appropriations. They were the States of Colorado and Delaware. But since then in the State of Delaware they have obtained a fund of \$15,000 or \$20,000 from private sources to carry on the work, so that they could carry on the cooperation with the bureau.

The plan of this work as set forth to-day is the eradication of tuberculosis from pure-bred cattle, the plan known as the accredited herd plan. That plan is in operation in 45 States, and that it has been a success is borne out by the testimony of the gentlemen who appeared here to-day representing every pure-bred cattle association in the United States.

In addition to the pure-bred herds, of course, we have got to look after the grade herds—the farmers' herds.

Last year when the breeders and the State live-stock sanitary officials and Dr. Mohler and the other bureau men got together in Chicago, we came to the same conclusions. And I want to emphasize, gentlemen, that this is our plan of cooperation, not a coercive measure, but we are working together in this eradication work, the farmer, the State official, the pure-bred breeder, and the Bureau of Animal Industry are going as one man in this campaign as has been shown here to-day; there is no contention between them; there is no division of plan.

The plan is "Now we have got together and we are going to stick together until we control and eradicate this disease"—gentlemen, we have made a canvass on this proposition. There are upward of 3,000,000 square miles in the territory of the United States, and of that vast area, two-thirds is comparatively free from tuberculosis. It exists to such a minor degree in two-thirds that the department is confident that in 10 years it can free that area, as Dr. Mohler said this morning, and preserve that area from tuberculosis. And what is that area? A large part of it is the Southern States, where there is the greatest development of live-stock industry growing in that territory that there is in any section of the United States to-day.

At the International Livestock Show, Mr. Chairman, where you visited last week, from the Southern States, where 10 years ago they did not raise anything but a \$10 cow, they produced this year the grand champion short-horn of America, the grand champion Hereford of America, and the grand champion Angus of America. It is in that territory that the live-stock industry is developing, and it is just as important for the United States Government and for the State officials and for the live-stock owners in general to preserve that territory free from tuberculosis as it is to develop any branch of agriculture. We can do it to-day at a very much cheaper rate than we will ever be able to do it, and by our precautionary measures to keep tuberculous animals out of that territory we are going to preserve at this time that territory in which the greatest advancement of the cattle industry will come about in the next 10 or 20 years.

The balance of the territory, as Dr. Mohler says, is a different proposition. Tuberculosis exists in it to the extent of from 5 per cent to 30 per cent among the cattle.

Only a month ago I was up in Otsego County, N. Y., where they have 5,500 farms, and where they have cattle on 5,000 farms. I went before the county bureau there and discussed tuberculosis. I told them, "Gentlemen, we are not coming in to ask you to create any new laws or to put any coercive measures on the people of this county. We are putting up the proposition to you that tuberculosis is a menace to the live-stock industry, and therefore a menace to the whole United States; that tuberculosis can be eradicated; it has been demonstrated. It is up to the people of this county if you desire to eradicate the disease; and the State will cooperate with you, and as far as possible the Government will cooperate with you." They adopted the tuberculosis accredited herd area in that country as a five-year plan for eradicating the disease.

Gentlemen, the place to eradicate tuberculosis is back on the farm, and the only way to do it is by taking the herd as a unit. You might work from now until the end of time, tuberculin testing cattle at public stockyards, where you get only one animal out of a herd or only two or three animals out of a herd. That does not eradicate tuberculosis if it exists in the herds back home. The place to eradicate tuberculosis is back on the farms, and the farmers of this country have shown their willingness and their appreciation of the opportunity of cooperating in this measure in the extermination of the disease by going to their legislatures and getting appropriations of \$2,000,000. This is a new work, two years old. It has met with almost universal approval. They are engaged in it in 45 States, and we know that within the next year or two the other three States will be actively engaged in the work. It is only a proposition of keeping pace with the demands for the work. Of course, it is the right of the States to look after the live-stock industry in the States; but this is a national proposition. Cows that are in one State to-day may be over in another State to-morrow, and unless you control this disease of tuberculosis, it is no respecter of State lines and it will go across.

The people have demonstrated that they want this work, and when I had the pleasure of coming here before I remember some of the members stated that it ought to be done on the cooperative basis. That is what we have undertaken to do, and I believe that it is on a cooperative basis, it is on a logical basis, it is on a plan that if

carried out can not help but succeed in eradicating tuberculosis, or reducing it to a very small percentage.

There was some mention made this morning about employing the services of private veterinarians. Our plan for this work is, we recognize the fact that Congress will never, and probably it should not ever, appropriate a sufficient amount of money to employ enough officials to go around the country testing all the cows, and supplemented by congressional appropriations. The 48 States would never appropriate a sufficient amount of money to go around and test everybody's cows, and I do not think it right that they should. But it is necessary to make a demonstration in all these States and to get this thing on a working basis.

We contemplate under this accredited herd plan—and that is the plan adopted by the breeders and approved of by every State in the United States and by the Bureau of Animal Industry—that after a herd has been accredited two years, that herd may be turned back to the private veterinarian and the department get rid of that herd, so as to be able to take on new herds. The private veterinarian will be paid by the private individuals.

In addition to that, as Dr. Mohler said this morning, there are about 6,000 private veterinarians in the United States who have been approved of to test cattle for interstate shipment. We contemplate that the time is coming when these 6,000, or maybe 10,000, of the veterinarians of the United States will be engaged in this official work of eradicating tuberculosis, not paid out of the Government's funds or paid out of the State treasuries, but paid by the owners. And we are building along those lines, getting everybody acquainted with the work and building up efficiency of the veterinarians throughout the United States, so that in time they can serve the purposes for which they were educated and help in the control and eradication of the diseases.

Another project in this work is the eradication of tuberculosis from an area. Take a county, for instance. In several States we are now engaged in the eradication of the disease from a county. In the State of Mississippi, in Hinds County and Clay County, the people voted on the proposition there, "Shall we eradicate tuberculosis from livestock?" By very substantial majorities that was carried in both elections, and they are so engaged in the eradication of this disease from those counties. After they clean up the disease in those counties, then they will have to be protected from the infection of cattle from other States. And another advantage is that after they clean up the disease from those counties the work will spread from county to county until it embraces a large area of the State, and probably the entire State; and then, when that area is clean, the county, or a group of counties, or the entire State, may become clean; then the interstate shipment of cattle from that territory may be permitted without any further tuberculin testing.

So that you see it is all working to that time when the interstate movement of cattle can be facilitated without restrictions. That is what we are working to. But until that time comes every State and every breeder must exercise eternal vigilance to prevent, as far as possible, the movement of diseased animals from one State into another.

In the Western States, in the arid section of the West, tuberculosis is not known among the range cattle, or it exists to a very insignificant degree. The only place you will find the disease there is down in the valleys where they started little dairy herds and brought cattle in from the older dairy States. There you will find a good deal of the disease. So that it is in those areas we must put forth the great effort to free them from what little disease there is, and then preserve them free from tuberculosis, and in the other areas carry on this work according to the demands of the people. That is the whole plan we have in mind; not to get any drastic laws and make it compulsory to have animals tested, but to build up among the live-stock owners of America a confidence in the ability to control and eradicate this disease. Thank you.

The CHAIRMAN. You were speaking about the dairy herds. What are the conditions as to introducing new stock into a herd?

Mr. KIERNAN. Into an accredited herd?

The CHAIRMAN. Yes.

Mr. KIERNAN. Before an animal can be introduced into an accredited herd it must have had two tuberculin tests, separated by a period of 60 days.

The CHAIRMAN. That is a part of the agreement?

Mr. KIERNAN. The owner signs an agreement to that effect; yes, sir.

Mr. RAINEY. You heard the discussion this morning between Mr. Brown of Chicago and Mr. Munn from St. Paul. There seems to be a conflict of understanding with reference to this appropriation. Mr. Brown suggested that in his estimation, inspection was paramount; that indemnity should be allowed, but if either one were to be curtailed, probably it would be preferable that indemnity be curtailed. The gentlemen from St. Paul suggested that the farmers might strenuously object to that.

Is your idea of the situation this: That the amount to be allowed by Congress should be given to the Department of Agriculture in a lump sum, and that they should pay for inspection whatever inspection is necessary, and that they should also apply the necessary amount to indemnity; and in applying the amount to indemnity that will necessarily lower the amount appropriated that they can use in salaries, but that the department should have discretionary powers, that it should be voted in a lump sum, and that it should be an elastic appropriation, and that you men who go about this particular thing should use it in that way?

Mr. KIERNAN. Yes; those are my views on the subject.

Mr. RAINEY. In that way you could provide for the inspection now, and at the same time take care of the indemnity also as it arises?

Mr. KIERNAN. Yes, sir. It seems only reasonable to me, if the State or the Government, after testing cattle, condemns them and takes them away from the owner for the welfare of the live-stock industry, that the State or the Government should reimburse the owner for the loss, or partially reimburse him, at least.

Mr. RAINEY. In the appropriation as it stands you are limited to a certain amount for indemnity, and a certain amount for inspection, and the amount allotted for inspection does not give the department opportunity to comply with the innumerable requests that have been made for inspection?

Mr. KIERNAN. That states the case.

Mr. RAINEY. The only way you can carry on your work effectively is to have a more elastic fund, so that you can send out the inspectors to discover this disease by inspection?

Mr. KIERNAN. That states it exactly, according to my view of it.

The CHAIRMAN. Thank you, Mr. Kiernan.

Mr. RAINEY. The last time I was here I made a plea for the veterinarians, to increase their stipend. Dr. Kiernan is a veterinarian, and I think he is wasting his time working for the Government. He ought to get outside where he can make more money.

Mr. SMITH. You mentioned a difference of opinion between Mr. Brown and Mr. Munn. Mr. Brown represents the various live-stock exchanges throughout the country, and he feels the great importance of stock-yard inspection to prevent the shipping out of these animals from the yards to the farms; but in his belief in that work he also believes just as heartily in the testing out on the farms. I know Mr. Brown very well, and I know that he feels greatly encouraged over the testing and accerding of herds in the country. I think both of them are equally important. It is absolutely true that the disease exists in the stockyards because it exists on the farms first. And so Mr. Munn is right in saying that we ought to give greater attention to this cleaning-up process on the farms, and that would decrease the disease in the stockyards.

Just one other point I want to make with regard to our production of live stock, and that is this: I mentioned this morning that we had now the highest prices on beef in the history of our country. Top prices for beef were 21 cents in Chicago yesterday. Those are the very highest prices, and that is due to scarcity. We have not a sufficient number of cattle in the country, and I fear that unless we can stimulate production we are going to see prices higher, to the detriment of the consumers. We have a shortage of cattle in this country. The range is no longer able to supply the demands of the feeders. The range has reached its limit. If we are going to have an increase of cattle throughout the United States, they must come largely from our farms, and if we are going to stimulate the production of cattle on our farms we ought to do everything we can to build up the industry on a healthy basis. We can not build up any industry on a diseased basis. So that this is right in line with our campaign for progressive production to eliminate this disease, which is a positive hindrance to development. I want to make that clear.

The CHAIRMAN. Have you any others to be heard, Doctor?

Mr. SMITH. I do not know of any others.

The CHAIRMAN. Mr. Hays, do you wish to be heard?

Mr. HAYS. Yes, sir.

**STATEMENT OF MR. MARTIN HAYS, OF BOSTON, MASS., COUNSEL
OF THE NEW ENGLAND FARMERS' AND LIVE STOCK DEALERS'
ASSOCIATION (INC.).**

The CHAIRMAN. Please state your name and residence.

Mr. HAYS. I am from Boston, Mass., and I represent the New England Farmers' and Live Stock Dealers' Association (Inc.). That is a Massachusetts incorporation, organized in 1918.

Mr. JONES. What position do you have in that association or organization?

Mr. HAYS. I am counsel for them.

Mr. JONES. It is an association of farmers and whom?

Mr. HAYS. Massachusetts farmers and live stock dealers. That association has a membership at the present time of about 150 farmers, cattle raisers and cattle dealers in all the New England States.

The market for cattle for those people is the Brighton stockyards at Boston, Mass.

Until July 1, 1919, the cattle at the Brighton stockyards were under State inspection. On that date the Federal Government took over the inspection.

I am addressing my remarks to this honorable committee in reference to tuberculin tests. These tests are made in accordance with regulations with which you are all familiar and I will not take up your time with the details unless you, Mr. Chairman, or any one of the other members of your committee desire to question me.

After a cow has been ordered killed by the Government inspector because of the fact that the chart after inoculation shows her to be a "reactor" there is always a post-mortem examination. If after such a post-mortem examination no lesion is found there is no way of showing that the animal was tubercular. Under the present conditions the owner of this animal has no redress. That is the grievance of my clients.

We find no fault if an animal is ordered killed and a post-mortem examination shows lesions, but it seems to us that a great hardship and wrong is inflicted upon us if through no fault or act of ours an animal is condemned and ordered killed because it is decreed tubercular and thereafter is found healthy and free from tuberculosis.

Since the Government inspection on July 1 last and to date about 150 milch cows were wrongfully killed, and I beg to present herewith a copy of a letter and inclosure from Dr. E. A. Crossman, inspector of the Bureau of Animal Industry at Boston, Mass.:

NOVEMBER 12, 1919.

MARTIN HAYS, Esq.,
18 Tremont Street, Boston, Mass.

DEAR SIR: As per your request, please find inclosed list of cattle slaughtered and no lesions found covering the period from July 9, 1919, to October 30, 1919, inclusive.

Very truly, yours,

E. A. CROSSMAN,
Inspector in Charge.

Then follows a list of cattle slaughtered, with the names of the owners, which is as follows:

List of cattle slaughtered and no lesions found from July 9 to Oct. 30, 1919, inclusive.

W. A. Ricker.....	32	G. B. Farr.....	2
D. A. Walker.....	3	Putnam Bros.....	9
R. J. Blanchard.....	2	B. Crosby.....	3
F. L. Libby.....	11	C. H. Gage.....	6
W. C. Savage.....	1	Atwood.....	2
Burlingame.....	3	McSatyre.....	1
F. O. Thompson.....	1	Corey.....	3
Austin Brooks.....	7	J. A. Clark.....	2
F. L. Brown & Son.....	1	Levine.....	1
V. Hanson.....	2	Glenison.....	1
C. J. Hanson.....	1	Fogg.....	1
Dorand Bros.....	5		
D. Simon.....	1	Total.....	102
Harman.....	1		

The CHAIRMAN. How many are there, altogether?

Mr. HAYS. The total is 102.

Mr. McLAUGHLIN of Michigan. What is the percentage of the total?

Mr. HAYS. If my memory serves me, 318 were ordered killed, and 131 were found without lesions.

Mr. WILSON. Nearly 50 per cent?

Mr. HAYS. Nearly 50 per cent, Mr. Chairman.

Mr. WILSON. In this list there were 102?

Mr. HAYS. That is by Dr. Crossman's figures, from July 9 to October 30, 1919.

Mr. JONES. Your data are for the year?

Mr. HAYS. They only commence July 1. Previous to that we were under Massachusetts State inspection.

Mr. JONES. Within what period of time did the slaughter of 131 animals take place?

Mr. HAYS. From July 1 up to date.

Mr. McLAUGHLIN of Michigan. Those inspections must have been largely by State inspectors?

Mr. HAYS. They were entirely by Federal inspectors. The State inspection ceased on the 1st day of July and the Federal inspection commenced.

Mr. CANDLER. Do they not have State inspection?

Mr. HAYS. There are State inspectors there, but this is all under the supervision of the Federal inspectors.

Mr. CANDLER. Do the Federal inspectors report to the State inspectors? Do they work under them?

Mr. HAYS. No; they do not. The tuberculin testing in that yard I am informed is entirely by the Federal Government.

The CHAIRMAN. The men are employees of the Federal Government?

Mr. HAYS. Mr. Kiernan made an investigation of that.

Mr. KIERNAN. They are employed by the bureau and State.

Mr. WILSON. Is that the percentage that is usually found without lesions?

Dr. MOHLER. No. I think the Brighton tests show up the poorest of any for reasons which I will mention later. We have all the tests at the various stockyards here and many of them will show as satisfactory as tests on farms.

Mr. HAYS. Permit me to illustrate how that affects my clients. I quote from a letter addressed to me by Mr. William A. Ricker, a cattle dealer from St. Johnsbury, Vt., dated November 17, 1919:

Cow No. 41788. My No. 3416 proved to be all right; no lesions at all. Now, I had this cow sold to Mr. Coburn for \$125 and I realized from same for beef purposes only \$32. Now, here is a loss to me of \$93.

The loss in these cases will probably average \$100 per animal, and inasmuch as the people whom I represent are to a large extent small cattle dealers it has resulted in some instances in such great hardship that the profits of an entire year were lost and in one or two cases has put the cattle raiser and shipper out of business.

The laws of Massachusetts provide for reimbursement in instances such as I have cited and until July 1, 1919, the Commonwealth of Massachusetts reimbursed the owner in all instances where no lesions

were found after an animal had been ordered killed after tuberculin tests and no lesions had been found.

We earnestly desire your favorable consideration for an appropriation so that the United States Department of Agriculture will have the right to pay the difference between what the carcass brings for beef, plus the value of the hide and the value of the animal before slaughter.

I have been in conference with Dr. J. R. Mohler, Chief of the Bureau of Animal Industry at Washington, D. C., with Dr. E. A. Crossman, in charge of the Bureau of Animal Industry at Boston, Mass., and with other veterinarians connected with the department and they are unanimously of the opinion that such legislation as I am asking for should be favorably acted upon. Inasmuch as there is no opposition to the proposed legislation and necessary appropriation and as I can conceive of none from any source, I am not going to burden your honorable committee with any extended remarks.

If the principle involved appeals to your sense of fairness and justice, I believe you should make the taking effect of the legislation retroactive to July 1, 1919, so that those persons who have suffered because of the conditions which I have described, through no fault of their own, may be reimbursed, subject to the approval of the Department of Animal Industry. Having presented a situation which admittedly requires alleviation, I leave the cause of the people whom I represent to your consideration and I earnestly urge speedy action.

I might supplement this, if I may be permitted, Mr. Chairman, by stating that our situation is not analogous to that of the gentleman who preceded in the other hearing. When an animal is condemned, and there are lesions found, the people that I represent ask for nothing from the Government, and are perfectly willing to have the animal slaughtered and to pocket their loss.

It is only when an animal has been slaughtered under the direction and by order of the Government, and the Government can not prove its case—in other words where no lesion is found in the animal, and it is therefore presumably healthy—that I ask that the men I represent be not burdened with a loss which they did not contribute to in any way.

Mr. McLAUGHLIN of Michigan. What is the proceeding in a case like you speak of there? The writer of this letter had a cow which he said that he had sold for \$125 before it was killed.

Mr. HAYS. For \$125.

Mr. McLAUGHLIN of Michigan. But when the butcher handled it, it was worth only \$35.

Mr. HAYS. Only \$32, in this case. They run from \$30 to \$50.

Mr. McLAUGHLIN of Michigan. There was an appraisement of the value of the cow before she was slaughtered, was there not?

Mr. HAYS. Not necessarily. He brought the cow there for sale, and sold the cow for \$125. These are dairy cows, you know.

The CHAIRMAN. He sold the cow subject to test?

Mr. HAYS. No; I do not think so. The cow was sold subject to the test, of course. There is no liability to produce the cow.

Mr. JONES. If he sold it, he could have got his money under the sale.

Mr. McLAUGHLIN of Michigan. I understand that where the Bureau of Animal Industry, cooperating with the State authorities, slaughters an animal, there is an estimate made of its value for breeding purposes or for beef, so that there must have been an estimate of the value of this cow before she was killed.

Mr. HAYS. You mean an estimate by the Federal authorities?

Mr. McLAUGHLIN of Michigan. Yes.

Mr. HAYS. None that I know of.

Mr. McLAUGHLIN of Michigan. I supposed that was the proceeding.

Mr. JONES. That would not make any difference if he had sold the cow for \$125. Whatever estimate they made on it, he would not be bound by their estimate, but the Government would have to pay for it on the accredited value.

Dr. MOHLER. This was an interstate movement through a public stockyard. The Government under present regulations does not pay for animals that react except where the whole herd is under supervision and the owner is cooperating to get a clean herd.

Mr. McLAUGHLIN of Michigan. Was not this done under this appropriation?

Mr. HAYS. Not under the accredited herd provision. It was done under the interstate movement of live stock.

Mr. McLAUGHLIN of Michigan. Under the authority under which you are acting, have you the right to compel the killing of the animal?

Dr. MOHLER. No; but we have a right to prevent its shipment, interstate, from the public stockyards, and it could not get out of the stockyards, to move intrastate, without the consent of the State officials, if it reacted to the tuberculin test. Let me explain that this is not connected with our accredited herd work. The cow in question came from Vermont into Massachusetts, and for the convenience of the owners, we have permitted cattle from other States to go into the Brighton Stockyard, at Boston, where they are held for the tuberculin test. This was a dairy cow, coming from another State into Massachusetts, and she evidently reacted to the tuberculin test, but on the post-mortem no visible lesions were found.

Mr. McLAUGHLIN of Michigan. Acting under that law, can you compel the creature to be killed?

Dr. MOHLER. No; but as a rule they are killed, although they could be quarantined.

Mr. McLAUGHLIN of Michigan. Whether the owner wishes it or not?

Dr. MOHLER. They are either killed or quarantined. They can not be moved interstate, under the organic act of 1884.

Mr. JONES. Any you pay no indemnity on these animals?

Dr. MOHLER. No. This is not a question alone of getting rid of tuberculosis, it is a question of protecting the buyer from purchasing diseased cattle in interstate trade.

Mr. JONES. That is not done under this act?

Dr. MOHLER. It is not done under the project for the tuberculosis-free accredited herd work.

Mr. McLAUGHLIN of Michigan. What course would you have taken if you had quarantined that animal?

Dr. MOHLER. We would have called in the State, and the State officials would have disposed of it according to the State regulations. We had no control of the animal except as an interstate product.

Mr. McLAUGHLIN of Michigan. You can forbid the shipment from one State to another?

Dr. MOHLER. Yes.

Mr. JONES. Then I understand that under your interstate provisions the Government has the right to take an individual cow and slaughter it, without paying any damage to the owner of any kind?

Dr. MOHLER. No; the Government does not order the slaughter, but if the cow is killed there has been no provision made for indemnifying the owner of an animal shipped in interstate commerce.

The CHAIRMAN. You did not order the killing of that cow?

Dr. MOHLER. No. We have no authority to order reacting animals killed.

Mr. McLAUGHLIN of Michigan. But the cow was killed under your direction?

Dr. MOHLER. As the result of the cooperative test with State inspectors.

Mr. McLAUGHLIN of Michigan. But you did not order her killed?

Dr. MOHLER. No, sir.

Mr. McLAUGHLIN of Michigan. And were not responsible for the killing?

Dr. MOHLER. No, sir.

Mr. McLAUGHLIN of Michigan. And the Federal Government did not pay anything toward it?

Dr. MOHLER. No. That is what the gentleman is referring to.

Mr. McLAUGHLIN of Michigan. But what is the effect, if you say a cow can not go any further?

Mr. LEE. It is to quarantine.

Mr. McLAUGHLIN of Michigan. But if it can not leave the quarantine for any other purpose, that compels it to be killed?

The CHAIRMAN. Under the law it has to be returned to the State from which it came?

Dr. MOHLER. If pure bred it could be returned to the State of origin, under the regulations. We can not compel it to be slaughtered.

Mr. McLAUGHLIN of Michigan. So that the owner of that cow could have taken that cow back where she came from and put her in quarantine, or she could have been killed?

Mr. HAYS. I suppose possibly he might, but it seems to me, in listening to the arguments this morning, it would be diametrically opposite to what this committee would desire, if a cow is tubercular that it should be returned to the place of origin and be allowed to be at large there.

Mr. McLAUGHLIN of Michigan. They were operating under a law that we were not considering this morning.

Mr. HAYS. Yes; of course; but the contagion that might arise from that cow would be the same in the case of a small dealer that has only half a dozen cows as in the case of a larger one. The people that ship their cattle to Brighton have anywhere from one animal up, and it is a public stockyard and they send their cattle there for sale.

Mr. McLAUGHLIN of Michigan. You speak of being a small dealer. I think it would be pretty small if the cow was worth only \$35.

Mr. HAYS. That is all she brought. She was worth \$125. She was sold for that.

Mr. McLAUGHLIN of Michigan. She was worth \$125 as a dairy cow, but only \$32 as meat?

Mr. HAYS. Yes, sir.

Mr. JONES. I would like to get this thing cleared up. Do you understand that when that cow was quarantined by the Federal Government the owner of the cow had a right to take the cow back home?

Mr. HAYS. I did not know that. As a matter of practice—

Mr. JONES. As a matter of fact, he authorized the killing of the cow? The owner acquiesced in it? Was there anything else for him to do?

Mr. HAYS. I will ask Mr. Ricker to answer that.

Mr. RICKER. The man there under Dr. Mohler's charge ordered these cattle killed, and I had no redress from it.

Mr. JONES. Who ordered them killed?

Mr. RICKER. The Federal bureau.

Dr. MOHLER. Did they serve you with a notice, or how did they order them killed?

Mr. RICKER. I do not know. They ordered them killed.

Dr. MOHLER. Our inspectors did not kill them, of course.

Mr. RICKER. They take them to the slaughterhouse and they are killed.

Mr. HAYS. I know they ordered them killed; and, as I undersand, they were killed, and we got no compensation.

Mr. McLAUGHLIN of Michigan. The Government officials are usually very competent and very careful, but sometimes they make mistakes, and if we had to make good all the mistakes that officials of the Federal Government make, it would take a good deal of money.

Mr. HAYS. Mr. Chairman, I might say, in answer to that, that if I understand the feeling in the department, which I have gathered from conversations with various veterinarians, they would rather kill 10 healthy cows than to let one unhealthy one escape; so that if there is any doubt, if there is any temperature shown, whatsoever, on the test, they order the cow killed; and while it might be a hardship in some instances for the Government to pay for the mistakes of all its agents, nevertheless in the law, as the Congressmen well know, it is the theory, and it is a greater hardship on an individual to stand it, it seems to me, than for the Government to do so.

Mr. McLAUGHLIN of Michigan. Let me give you a case showing an instance of the way the Government deals with some of its people. There was a lady in my congressional district who was informed, upon inquiry, that certain land was open to homestead entry, and she took up 80 acres of land under a homestead entry. She made a proper filing and went into possession and improved that property to the extent of \$2,500. Later she found that another patent had been issued previously to hers, and the land was taken away from her by the owner who had the previous title. She put the matter up to the Land Office here, and the Land Office said, "Why, the Government does not issue quit claims, and we can not do anything for you."

Mr. HAYS. Mr. Chairman, I do not think that is analogous.

Mr. McLAUGHLIN of Michigan. I do not think so, either. I think it is highway robbery.

Mr. HAYS. She should have examined the title.

Mr. McLAUGHLIN of Michigan. Oh, pardon me, she did. She asked the official representatives to tell her from the State records, and they told her that the land was open to homestead entry. How could she know?

Mr. HAYS. I should also imagine, Mr. Chairman—not wanting to deviate from the subject—that she has so able a Representative in Congress that she will probably be reimbursed. [Laughter.]

Mr. JONES. He might take this cow case for you.

Mr. McLAUGHLIN of Michigan. Who represents the congressional district where this loss was suffered?

Mr. HAYS. Those animals come from several States. We have not any direct Representative on this committee. There are no New England men on this committee.

Dr. MOHLER. May I say something with reference to this point brought up by Mr. Hays? As you all know, it is against the statute for diseased cattle to be shipped in interstate commerce, and one of our regulations requires a tuberculin test for dairy cattle moving interstate. As an exception to that rule of not permitting cattle to move into any other State without examination, and for the convenience of the owners, we are allowing these cattle to be shipped to the Brighton stockyards and examined there. I think we have records of 322 reacting animals killed, which were shipped to the Brighton stockyards, 217 of which were visibly tuberculous, and the difference between 322 and 217, or 105, showing no visible lesions. That is an accuracy of about 68 per cent, so that it is slightly more than the figures given by Mr. Hays. But the point is that we are doing this as a convenience to the owners of the cattle, and it was not proper for the man who was doing this buying to ship 217 diseased cattle into Massachusetts.

The whole problem can be solved by Mr. Ricker, as I have told him, by having the cattle tested in Vermont, and if they are diseased held in Vermont and not brought into Massachusetts in interstate traffic. That is what I think is largely being done now.

Mr. McLAUGHLIN of Michigan. If those cattle had been examined in the State of Vermont, a certificate would have been issued there?

Dr. MOHLER. Yes; and they could have come into Massachusetts under that certificate.

Mr. McLAUGHLIN of Michigan. And would that have been accepted by you?

Dr. MOHLER. Yes; and by Massachusetts also. That is what is being done. There are more animals being tested to-day in Vermont and New Hampshire and Maine for shipment to the Brighton stockyards than ever before. Before the 1st of July the cattle that came to the Brighton stockyards, as Mr. Hays has stated, were tested by the Massachusetts officials. They did not take them all on one test, but if they reacted they held the reactors over for another test, and the result was that they were sometimes able on the second test to pass animals. A number of those that reacted the first time were considered clean the second time. But they were not all considered clean. There were still those that would react to the second test.

Mr. McLAUGHLIN of Michigan. When those animals are tested in Vermont before being shipped out, by whom are they tested?

Dr. MOHLER. By anyone considered satisfactory by Commissioner Brigham, of Vermont, and approved by us.

Mr. McLAUGHLIN of Michigan. You do not require them to be inspected by a member of your bureau?

Dr. MOHLER. No. That is done by these 6,000 or 7,000 veterinarians who are approved by the bureau. We do not claim that the tuberculin test is infallible, although we find that it works satisfactorily on animals on farms in 95 per cent of the cases. These Brighton stockyard animals are dairy cows, and they are bagged up and fed high and brought on there in a strange environment to be sold. The chairman knows how very hard it is on the system of a dairy cow to be bagged up and fed high in order to make a good showing on sales day, as everything is against the tuberculin test when applied to cattle under those conditions.

Mr. McLAUGHLIN of Michigan. When they get to the post-mortem examination and there is no lesion found, is that considered conclusive of the fact that there is no tuberculosis?

Dr. MOHLER. No, sir; it is not.

Mr. McLAUGHLIN of Michigan. A cow may be infected with tuberculosis although no lesions are found?

Dr. MOHLER. That is often the case. As I said, we have had a number of glands from no-lesion reactors sent to our laboratory in Washington for microscopic examination and the last figures I had show tuberculosis in about 50 per cent of the glands sent in from these no-lesion cattle that are killed, while the other 50 per cent are normal.

The CHAIRMAN. What was the remedy for the owner in this case? The cow could have been shipped back to Vermont?

Dr. MOHLER. Yes; if it was a pure-bred cow. Pure-bred cattle can be returned to the State of origin, but no other kind can be so returned. That was allowed by our regulations two years ago. I understand that this was a Holstein cow.

The CHAIRMAN. Under the the rules and regulations it could have been shipped back?

Dr. MOHLER. Yes.

The CHAIRMAN. The law permits it?

Dr. MOHLER. Yes, sir.

Mr. HAYS. My people would be satisfied with a reasonable test, and it seems to me that if the Government can not show, either by an examination of the glands, if the Government thinks that is necessary, or by the ordinary test that is applied and finding of lesions, and if the agent has made a mistake and there is no tuberculosis in the carcass, then the owner should not be asked to bear the burden, particularly as under our State inspection he was not asked to do so. There was no difficulty about it under the State inspection. The Commonwealth paid the bill. If they found that they had killed a cow and there was no lesion, the Commonwealth paid for it, and that was the end of it. Those were the conditions up until the 1st day of July; and I trust you gentlemen will take into consideration that while there were 171 or 270 animals killed, they did not come from one or two or three or four or five shippers, they came from

a large number of small shippers; and that you should not penalize one unlucky fellow because there may have been a bad actor in some section of New England.

That is the situation here to-day. We are here with a wrong, without any remedy, unless you gentlemen give it to us.

The CHAIRMAN. Would the 50-50 plan be satisfactory to your State, and would your State put up an equal amount?

Mr. HAYS. I think not, as long as it is under Federal inspection. I have talked with Dr. Howard, who was the head of our board of animal industry, and he did not favor it at the time. What our legislature would do I am not prepared to say.

The CHAIRMAN. The department has no discretion?

Mr. HAYS. Not if we pass an act.

The CHAIRMAN. On the 50-50 plan?

Mr. HAYS. Not if we pass an act. But whether they would want to do that when the inspection is Federal and the mistake is Federal, I am not prepared to say. I do not really see why the Commonwealth should pay for a mistake of the Federal Government. It would be different if we paid for every animal that showed tuberculous tendencies—that would be one proposition—in order to eradicate the disease, and if the owner of the animal was satisfied with that. But we are in a different position. Whenever the animal is tuberculous we are perfectly satisfied to have it killed for our mistake. It is only when the animal is not tuberculous that we appeal to you.

The CHAIRMAN. There seems to be some question as to who is responsible for the condemnation, whether the cow is condemned by the department or by the State, or voluntarily by the owner.

Mr. HAYS. As I understand it, Mr. Chairman, the test is made by the Government.

The CHAIRMAN. Yes.

Mr. HAYS. And the Government inspector condemns the cow to death, and it is killed without much loss of time. That is the practical working out of it.

The CHAIRMAN. I understood the doctor to say that the test was made there as a matter of convenience to the owners.

Mr. HAYS. No; it is a matter of necessity. The matter of convenience is that it is at the stockyards, and that convenience works just as much for the benefit of the bureau as it does for that of the shipper and dealer. Here is one central point where a large number of the cattle of New England are sent, and it is much more convenient for the Government than to have its men travel all over New England testing these cattle.

Dr. MOHLER. We would not attempt to do that, of course.

Mr. HAYS. You could not attempt that. We have had an experience in having our animals tested before shipment. I might state an unfortunate case that happened, where they were cited for retesting, and when I made complaint and said that this man who examined the cattle was approved by the Federal department, and asked them why they retested them, they said, "Oh, he did some things we did not like, and we had to retest." In other words, the department has not got that confidence in all veterinary agents that it might have; and we have no way of knowing whether the veterinarian who would test our cattle in the States stands in the good graces of the department or otherwise.

Mr. HUTCHINSON. These cattle were brought from Vermont to be slaughtered in Boston?

Mr. HAYS. No; for dairy purposes.

Mr. HUTCHINSON. Not to be slaughtered?

Mr. HAYS. No; they are brought in from New Hampshire and Vermont and a few from Maine, into Massachusetts. Some of them are sent to the other New England States, and some are sold to Rhode Island and some to Connecticut, and some stay in Massachusetts.

Mr. JONES. And some might be sold back to Vermont?

Mr. HAYS. Yes; some might be sold back to Vermont. Brighton is a suburb of Boston. That is the great market in that part of the country.

Mr. HUTCHINSON. There are none of those cattle that come in there without a certificate, are there?

Mr. HAYS. No; they have the option of being tested in Brighton.

Mr. HUTCHINSON. Who gives them the option of being tested in Brighton?

Mr. HAYS. The department, as I understand.

Mr. HUTCHINSON. Suppose they stopped that; would not that remedy the case?

Dr. MOHLER. Yes, sir.

Mr. HUTCHINSON. That is what they ought to do.

Dr. MOHLER. The Secretary's regulations allow these cattle from one State to go into a public stockyard in another State and be tested there, purely for the convenience of the shippers and not for the sake of the department at all, because it would be less work for us to have tests made in Vermont through State men and have the animals shipped into Massachusetts with the Vermont test charts.

Our man at Brighton, instead of taking 36 hours to make a test, could see if the test chart was all right, and then O. K. it in five minutes.

Mr. HUTCHINSON. That is what you should do.

Dr. MOHLER. Yes; I think Mr. Ricker has been doing that for the past few months.

Mr. HAYS. I would say, on that, that at many points in the States no veterinarian is accessible, and an examination there would entail a large expense. It might cost \$25 if a man had one or two cows that he wanted tested, and it would be unreasonable; and they would not know to a certainty that that test would be satisfactory to the department. The owner would not know but what that particular agent had gotten in bad with the department and that his test would not be satisfactory.

Dr. MOHLER. He is not the agent of the Government; he may be the agent of the State.

Mr. HAYS. He becomes an agent when he is approved. The word "agent" is used in this broader sense. A veterinarian may outwardly, at least, have the approval of the department, but when these papers get to Brighton the dealer is likely to find out that the papers have no value in the eyes of the department.

The CHAIRMAN. You have no authority to appraise animals except on the farm?

Dr. MOHLER. Not under the present law; no, sir.

Mr. HAYS. I would like to call on Mr. Ricker to make a statement.

The CHAIRMAN. The only remedy in this case is to ship the cattle back to the States?

Dr. MOHLER. The owner can do that, of course, only in case the cattle are pure-bred animals.

The CHAIRMAN. That preference given to pure-bred animals is through a regulation of the department?

Dr. MOHLER. In the law of 1917, I think, you will find that it states only pure-bred animals could be returned. That, I think, was in the original act for accredited herd work.

The CHAIRMAN. It states that the Secretary of Agriculture may in his discretion, under such rules and regulations as he may prescribe, permit cattle which have been shipped for breeding, and so on. There is nothing about pure-bred cattle there.

Dr. MOHLER. Then it is a regulation, which prescribes pure-bred cattle. I thought it was in the law.

Mr. HAYS. No. May I not ask, would not that defeat the object of this honorable committee in regard to the eradication of tuberculosis, if, assuming that an animal is tuberculous, it should be allowed to be shipped back?

The CHAIRMAN. That was put in the law in order to make it certain that they were not to reimburse the packers, but would reimburse the farmers. The packers definitely make an allowance, or such reductions necessary to make good the losses through tuberculosis. We thought it would be too big a proposition to reimburse the packers, and I think all who appeared before the committee agreed with us.

Mr. HAYS. That does not deal directly or indirectly with the farmers. It is only the small dealers in New England who are interested and concerned in this, and I would like to have you hear from Mr. Ricker.

Mr. CANDLER. I do not understand about the functions exercised by your State authorities. Since the 1st of July they have had no authority at all?

Mr. HAYS. So far as tuberculosis is concerned, no. That is entirely Federal.

Mr. CANDLER. They have gone out of business so far as that feature of it is concerned?

Mr. HAYS. So far as State inspection is concerned. The State does not function. The Federal Government has taken it all.

Mr. CANDLER. That is relating to these interstate shipments?

Mr. HAYS. Yes.

Mr. CANDLER. So far as the State is concerned, the State authorities still exercise authority over that business?

Mr. HAYS. Yes.

Mr. CANDLER. This is merely in respect to interstate shipments coming into the State that the Federal Government has control?

Mr. HAYS. Yes; there is no tuberculin test, as I understand it, of State cattle. In other words, if a man from Massachusetts brings his animals into the Brighton yards, there is no test.

Mr. CANDLER. As I understand, and I am a little surprised to learn that, there is no cooperation between the Federal Government authorities and your State authorities.

Mr. HAYS. So far as I know, there is not.

Mr. JACOWAY. Ever since I have been on this committee they have been making vast appropriations for this work. What progress have you made in the last five years in stamping out or eradicating tuberculosis among cattle?

Mr. HAYS. I do not think that I can answer that question. I do not know. I found out this morning when I asked, when Dr. Mahler was reading the list of appropriations, that Massachusetts appropriated last year \$53,000. The progress that has been made I am not conversant with.

Mr. JACOWAY. You have some superficial idea of it, have you not?

Mr. JONES. Mr. Hays is an attorney, Mr. Jacoway, representing an association here. He appears only in that capacity. I do not think he is qualified to answer that question.

Mr. JACOWAY. All right; I just wanted to see what was being accomplished.

Mr. HAYS. There are some other questions to be answered, and I would like to call on Mr. Ricker, who is president of the association and is a cattle dealer and cattle raiser.

The CHAIRMAN. Thank you, Mr. Hays. We will hear Mr. Ricker.

STATEMENT OF MR. W. A. RICKER, ST. JOHNSBURY, VT., PRESIDENT OF THE NEW ENGLAND FARMERS' AND LIVE STOCK DEALERS' ASSOCIATION (INC.).

Mr. RICKER. I want to correct Mr. Hays in the name that he gave the association, if you will pardon me. It is the New England Live Stock Dealers' and Farmers' Association. You gave it, Mr. Hays, as the "Massachusetts" association. It represents all of the shippers of the New England States shipping into what we call our Brighton market, there, which is the same for that part of the country as the Chicago market is in the West.

I do not know whether you want us to tell the story, or whether you want to ask me questions here. I will do either one you want. We have a veterinarian to go and represent us after these cattle are condemned by the bureau, and he gave me some figures here. He examined these cattle that the Bureau of Animal Industry killed since the 1st day of July, since the Bureau of Animal Industry took the testing of the cattle away from the State of Massachusetts, and his figures show that 318 cattle were destroyed and 131 proved to have no lesions.

Now, all that we are asking for is to get an appropriation here some way, or to get a bill through, so that we can be reimbursed for these mistakes. We think it is a hardship on us. I have got the names of the owners of these cattle and the number of head that were killed at different times, and belonging to different shippers, and the numbers that were condemned.

Take myself. I shipped 105 which were killed cattle during this time, and 43 proved to have no lesions. As he says here is a personal letter to me, some of those they have sent to be examined in the laboratory in Washington, and he has had no report ever made to him on that.

Mr. WILSON. Were the 105 cattle you speak of those that were killed?

Mr. RICKER. One hundred and five were killed, and 43 proved to have no lesions.

Mr. WILSON. These cattle were your own personal property?

Mr. RICKER. My personal property. I have about 75 men buying stock for me throughout Vermont and New Hampshire, and shipping to Brighton anywhere from 110 to 125 milch cows to the Brighton market. It is almost impossible to get them tested in the country before shipment. We realize that we have been allowed to ship them into this quarantine station, and that is a great help, but we think we are being put upon pretty hard when you take 43 out of 105 that are sound animals; nothing can be shown against them on examination without a microscope or anything else.

Mr. JONES. What is your understanding of what you can do when you are notified that these cows are in quarantine?

Mr. RICKER. They are condemned and the Bureau of Animal Industry orders them slaughtered.

Mr. JONES. Are you given any notice that they are subject to the quarantine?

Mr. RICKER. They are subject to quarantine the minute they arrive there. We can not do anything else with them.

Mr. JONES. Are you given notice that they are killed?

Mr. RICKER. We are right there on the ground and see the operation. They put chains around the necks of the animals and if they are free from tuberculosis the chain is removed. Then if they want to hold them for another week for a retest, they put another chain on them.

Mr. JONES. Have you any remedy in the matter, or do you know of any?

Mr. RICKER. I do not see that I have any, sir.

The CHAIRMAN. Who condemns the cattle?

Mr. RICKER. The Bureau of Animal Industry.

The CHAIRMAN. There seems to be some question about it. I understood Dr. Mohler to say that they did not condemn them.

Dr. MOHLER. They are condemned by the tuberculin test, as reacting to the test for tuberculosis.

Mr. McLAUGHLIN of Michigan. By your men?

Dr. MOHLER. Sometimes by our men and sometimes by the State men who are always there. In fact, the testing is done cooperatively, the State having the same number of men as the bureau. A cow may have one temperature taken by a bureau man and the next by a State man or vice versa.

The CHAIRMAN. They are declared to be tuberculous, but you do not order them killed, do you?

Dr. MOHLER. No, sir; we do not order them killed.

The CHAIRMAN. Who orders them killed?

Dr. MOHLER. Mr. Ricker knows more about that.

Mr. RICKER. I know of no one else but your man that orders them slaughtered.

Dr. MOHLER. But they are shipped there subject to test, and the understanding is that, if they are tuberculous, they can not go any farther, and they are then subject to State regulation.

Dr. MOHLER. The man that injects the tuberculin is not the man who does the post-mortem work.

Mr. RICKER. But the man that inspects them tells them to kill them.

Mr. JONES. Who tells them to kill them?

Dr. MOHLER. I do not know, I am sure.

Mr. JONES. What do you know about that, Mr. Ricker?

Mr. RICKER. All I know is that some one of those men takes these cattle, and they are driven down to the cattle house and killed.

Mr. HAYS. Is that a State man or a Department of Agriculture man?

Mr. RICKER. I do not know.

Mr. HAYS. Who orders them killed?

Mr. RICKER. I do not know. I am not in touch with that.

Dr. MOHLER. The man in charge of the Federal work at Brighton stockyards is Dr. Crossman, while the State work there is in charge of Dr. Howard, who has three representatives present all the time. Dr. Howard is the chief of the department of animal industry of Massachusetts, and he and Dr. Crossman cooperate in the friendliest way, each in accordance with his authority.

Mr. RICKER. Dr. White?

Dr. MOHLER. Yes; he is there, representing the State of Massachusetts.

Mr. WILSON. Who makes the post-mortem examination?

Dr. MOHLER. If the animal goes to a Federal-inspected establishment, the inspector of the Federal meat-inspection service makes it.

Mr. WILSON. I am talking about these cows, now.

Dr. MOHLER. I have not specific data on these cows.

Mr. WILSON. Where do they go; to the packing house?

Dr. MOHLER. To the packing house, or a slaughterhouse of some kind, that is under Government inspection.

The CHAIRMAN. Do you know who makes the post-mortem examination?

Dr. MOHLER. If it is done in a Federal plant, the Federal Government makes it, but I can not give you the name of the man.

Mr. RICKER. I think it is Dr. White.

Dr. MOHLER. I do not know. The only Dr. White I know of in Boston represents the State of Massachusetts at the Brighton yards. I always supposed that it was a State man that permitted these cattle to be killed instead of holding them under State quarantine.

The CHAIRMAN. Is it not a fact that the law of the State requires the killing of these cattle?

Mr. RICKER. I can not answer that.

Mr. HAYS. So far as I know. Are you certain that the State representative has not been there for the purpose of detecting anything in connection with tuberculosis? I am informed by Dr. Ellsworth here, who will testify in a few moments, that the killing is ordered by the Federal agent, and that the post-mortem is made by the Federal agent.

The CHAIRMAN. Thank you, Mr. Ricker.

Mr. JONES. If there is somebody here who has the facts let him testify. Let us get through with this.

The CHAIRMAN. We will hear Mr. Ellsworth.

STATEMENT OF MR. JOSEPH W. ELLSWORTH.

Mr. ELLSWORTH. I do know that the Federal authorities have charge at the Brighton yards and work through the State authorities, and what is done there is this: The cattle are ordered to be killed by the Federal authorities, and are driven to the abattoir and killed. The cattle that go down to the abattoir are driven there by the Federal authorities.

Mr. JONES. May I ask what happened to Mr. Ricker's cattle that reacted to the tuberculin test, in general, before the Federal Government took charge there?

Mr. ELLSWORTH. The State took charge of them.

Mr. JONES. And the State killed them?

Mr. ELLSWORTH. Yes.

Mr. JONES. And the State paid for them?

Mr. ELLSWORTH. They paid for those that did not show lesions after being killed.

Dr. MOHLER. As I understand, this same class of cattle have always gone to the abattoir?

Mr. RICKER. Yes.

Dr. MOHLER. The State ordered them killed before the 1st of July?

Mr. ELLSWORTH. Yes.

Mr. JONES. You do not mean to say that the State would order them killed now?

Mr. ELLSWORTH. I do not think so.

Mr. JONES. If the State ordered them killed and paid for them before the 1st of July, you do not imagine that the State would order them killed now and wipe out the indemnity, do you?

Dr. MOHLER. I do not know.

Mr. JONES. You do not imagine they would do that, do you?

Dr. MOHLER. I do not know; but whoever ordered them killed before July 1 has, in my opinion, ordered them killed since July 1, and I feel certain no Federal inspector has overstepped his authority to that extent.

The CHAIRMAN. Have you any authority to order them killed?

Dr. MOHLER. No, sir; we have not.

Mr. ELLSWORTH. I know that on the 1st of July the State authorities stepped down and the Federal authorities stepped in, and they have been getting cattle just as before.

Dr. MOHLER. Since the Federal authorities became associated with this work on the 1st of July the owners have not been paid for no-lesion reactors by the State. Whoever ordered them killed before probably did not have to order them since that time, because the procedure had become routine, and most dealers prefer slaughter to quarantine in these cases.

Mr. ELLSWORTH. Only that the Federal authorities ordered them killed.

Mr. CANDLER. If they were killed under the State law before the 1st of July, then after the Federal authorities took control, I take it, they were killed on whatever the Federal authorities found. Or were they killed under the State law, which does not permit them to remain in the State?

Mr. ELLSWORTH. Before the 1st of July the State authorities took charge of these cattle and had them killed.

The CHAIRMAN. Thank you, Mr. Ellsworth.

Mr. CANDLER. If, prior to July 1, they were killed under the State law, then the State must evidently take the examination of the Federal Government as to the existence of the disease, and the penalty is inflicted by the State.

Mr. JONES. Their argument is that the State repealed the prior law as to indemnity, but still continued to exercise the right to kill these cattle. I think that is unreasonable, and I do not think that any State would do such a thing.

Dr. MOHLER. The only feature I know of that might have a bearing on this point is the fact that the Massachusetts State law is very stringent in regard to the bringing into the State of diseased cattle, and they would not allow cattle purchased in Massachusetts, and subsequently found tuberculous on the 60-day retest in another State, to be returned to Massachusetts, even though the Federal Government might permit it. The Massachusetts State law prohibits any tuberculous cattle coming into Massachusetts.

Mr. JONES. If there is a State law of Massachusetts which provides that where cattle do not have tuberculosis the owner should be reimbursed for the full value of the cattle—if there were such a law I do not know and I do not say that there was such a law. If they repealed that law as to the indemnity and still kept the right to kill the cattle, do you not imagine that that would create such an uproar in the State that everybody would know about it?

Dr. MOHLER. Yes; but your premise is wrong. There has been no law repealed. This is an act of the chief of the department of animal industry in Boston, and his view, as he explained it to me, was this: That he was going to stop the shipment in there of diseased cattle from other States, and that he did not propose for Massachusetts to be a dumping ground for diseased cattle and then have the taxpayers of Massachusetts reimburse the breeders of other States.

Mr. JONES. You mean there was no law of Massachusetts whereby the State paid for the cattle killed at Brighton?

Dr. MOHLER. There has been no repeal of such a law.

Mr. JONES. Was there such a law?

Dr. MOHLER. I do not know whether there was such a law or not. I know that since the 1st of July the chief of the Massachusetts department of animal industry decided that he would not pay.

Mr. JONES. Under what authority does the State pay money if there is no law to pay it?

Dr. MOHLER. I did not say that there was no law, but there has been no repeal of such a law.

Mr. JONES. Was there a law?

Dr. MOHLER. I do not know; but I repeat there was no repeal of a law.

Mr. JONES. Then the law is still in force?

Dr. MOHLER. I am not arguing—

Mr. JONES. If there was such a law and it has not been repealed, it is still in force?

Dr. MOHLER. Certainly.

Mr. JONES. Then why does not the State reimburse these fellows who bring their cattle into the State, which are killed under these circumstances?

Dr. MOHLER. I shall endeavor to find out for you.

Mr. JONES. Massachusetts is not liable, or they would pay it; is not that true?

Dr. MOHLER. I should think so.

Mr. JONES. Yes.

Mr. HAYS. So far as the law is concerned, if I may clarify it a little, I am not familiar with all the statutes there, but I am and have been for the last 15 years a member of the State legislature, and I know there has been no law repealed. The legislature was in session until the 26th of last July, and is in session at the present time. We have a law that provides for the reimbursement for cattle such as I have described, when there are no lesions, and appropriation has been made annually for that purpose. There has been no repeal of a law.

Mr. JONES. Why did the State refuse to pay?

Mr. HAYS. Because we did not order the animals killed. That is the whole answer. The animals are ordered killed by the Federal authorities.

The CHAIRMAN. Are they not ordered killed by virtue of law?

Mr. HAYS. Massachusetts law?

The CHAIRMAN. Yes.

Mr. HAYS. I know of no law which would compel the killing of a cow that is affected by tuberculosis.

Mr. WILSON. I notice that a little over 40 per cent of the cattle that have been killed, as Mr. Ricker says, did not have any disease. What was the percentage of the cattle killed and found to be all right under the prior supervision by the State?

Mr. HAYS. I have not the figures, but I think that what Dr. Mohler says is correct. Under State supervision, if I am correctly informed, a large number of the reactors were held for a retest, and again, if I am correctly informed, very frequently when a cow is subjected to a retest within a week or two weeks after the first test, if she does not react within a certain time, she is turned loose in the community; so that I should say that the percentage of killing was less; how much less I do not know, but that it was considerably less.

Mr. WILSON. This looks to me like a pretty big percentage of mistakes to make; does it not to you, Doctor?

Dr. MOHLER. That is a larger percentage than we have in other places. We have a number of stockyards where the accuracy is 100 per cent; but I think that we can explain why the errors are more frequent at Brighton. The cattle there are mostly milk cows, and they are bagged up and fed high for a sales day. They are fixed up and put in fine condition so that they will bring good prices on sales day.

The CHAIRMAN. Are these cattle sold at auction?

Mr. RICKER. No, sir; at private sale.

Mr. CANDLER. Was this appropriation, made by the State, to pay for Massachusetts cattle?

Mr. HAYS. No, sir.

Mr. CANDLER. That was to pay for any cattle?

Mr. HAYS. That is, to pay for an animal any time that our inspectors made a mistake. We settle for it. There would not be

an appropriation made until 1920. Whether there will be one made next year or not, I do not know. I presume that if there is no State inspection there will be no State appropriation, but I am not certain as to that.

The CHAIRMAN. Do your State authorities desire to return to State inspection?

Mr. HAYS. I presume that the people I represent would be satisfied. How the State would feel about it, I do not know. I would be very glad to bring Mr. Howard down here, of the department of animal industry.

The CHAIRMAN. Dr. Mohler asked whether the people of Massachusetts objected to paying the losses on the cattle of other States.

Mr. HAYS. I never heard of any objection. I think Mr. Howard, of the department of animal industry, would be satisfied to go back. I do not believe there would be any objection on the part of the Commonwealth. I know there would be none on the part of the people I represent.

The CHAIRMAN. Why was the transfer made from the State inspection?

Dr. MOHLER. Because Brighton was a public stockyards, where cattle were brought from all the States in the New England territory. This all goes back, you know, to over a year ago, when the court of appeals in Kansas City ruled that Missouri had no power to issue regulations with reference to bringing cattle from other States into Missouri that did not conform to the Federal regulations. As soon as that was done, the people of Missouri felt, inasmuch as this ruling rendered all of the Missouri regulations governing the importation of live stock ineffective, that it was necessary for the Government to protect the live stock of their State, and they wrote to the Secretary.

Senator Reed and several others, and Mr. Rubey also, indicated strongly that it was necessary to protect Missouri. We could not protect Missouri without protecting the other 47 States; and as the result of what the court did with reference to this case in Missouri, the Secretary on the 1st of July issued regulations prohibiting the movement interstate of any dairy or breeding cattle unless the tuberculin test had been applied. In order to facilitate the movement and to prevent any hardships to shippers, he stationed men around in the stockyards, and Brighton was one of the yards where he put men, in order to accommodate the owners of cattle.

The CHAIRMAN. These cows are subject to Federal control while in interstate commerce?

Mr. HAYS. Yes.

The CHAIRMAN. The Government has men in Massachusetts and in other States?

Mr. HAYS. Yes.

Mr. RICKER. May I ask, Dr. Mohler, whether the cattle there are killed that are condemned under your inspection?

Dr. MOHLER. As a rule they are slaughtered.

Mr. RICKER. Under whose order?

Dr. MOHLER. Either the owner or the State. There is no order issued by the bureau. There is usually a request from the owner to get them slaughtered promptly. They could be shipped back to the State of origin in case they are pure-bred animals.

The CHAIRMAN. Cattle might be required to be examined before coming from these other States?

Dr. MOHLER. Yes; we are only doing this as a matter of accommodation.

Mr. RICKER. Mr. Chairman, we appreciate this accommodation very much, but we do not appreciate this shock. Right here, August 11, I had 12 animals condemned by this bureau and 7 of them proved to have been sound and all right. That entailed a loss to me of over \$1,200 on those cattle. I had animals in there, grade animals, for \$250 apiece, that did not bring me over \$35.

Dr. MOHLER. Would the State of Massachusetts be willing to have cattle shipped in from Vermont and New Hampshire and other States, found to be tuberculous, killed, and then the State of Massachusetts pay for them?

Mr. RICKER. No, sir; and we have never asked for that. The State paid when they made mistakes—just such mistakes as the Federal Government is now making. When they killed sound animals, then they were willing to pay in full. In the case that has been spoken of here I had that animal sold for \$125. The Federal man—or the State man before the Government took it over—would take that sale for the price of the animal. If the animal was not sold, the agent of the bureau would come around and fix the price of that animal.

Mr. JACOWAY. It is against the law to ship tuberculous cattle in interstate commerce?

Mr. RICKER. Yes.

Mr. JACOWAY. Is it not a great privilege to allow the shipment of cattle into Brighton market in this way?

Mr. RICKER. Yes.

Dr. MOHLER. Of course, it would cost considerable money to test these cattle, 75 to 125 every week, in Vermont and New Hampshire.

Mr. RICKER. Yes. All that we are getting at is these cattle that prove sound. That is what we want to impress on this committee's minds.

Mr. WILSON. Does it not appear to you, Doctor, that your inspection there is faulty?

Dr. MOHLER. I believe we have made a number of unpreventable errors there, and I think there is a great deal of merit in what Mr. Hays and Mr. Ricker have stated. I should like to see it so that when we make these errors we could reimburse the owners of the animals, especially where no lesions are found.

Mr. WILSON. I think that the inspectors there should be inspected as much as the cattle. That is the way it looks to me.

Mr. JONES. What is the opinion of the department as to the general proposition of making no reimbursement if the cattle are found to be tuberculous and full reimbursement where the cattle are found not to be tuberculous? I think the owners ought to stand the loss if they are tuberculous.

Mr. RICKER. The owners are willing to.

Mr. HAYS. You understand that we do not object to that?

Mr. JONES. Yes; I am asking Dr. Mohler.

Dr. MOHLER. My general opinion is that in the work of tuberculosis eradication we would not make as much progress if we elim-

inated the indemnity. I think it is the wiser policy for us to continue the indemnity in the tuberculosis eradication work for some time to come. I think Prof. Smith made the point this morning that it is a great encouragement to a young man who has a large percentage of infection in his herd to know that he is going to get something for those animals that are found to be tuberculous.

Mr. JONES. Yes; and would it not come about the same if it were not tubercular?

Dr. MOHLER. No. The amount of unpreventable error on the farm is only about 5 per cent. The amount of these errors in the Brighton yards, according to our figures, is 25 per cent. The error in Chicago and Kansas City and some of these other yards is far less than what the Brighton figures have been. The only way that I can explain the great number of no-lesion animals found there, after reacting to the tuberculin test, is just as I have stated, that these animals are all dairy cattle, and they are being forced and bagged up in order to make a good appearance for sale. They are bagged up, fed highly, and pampered, in order to make the very best showing on these two sales days.

Mr. JONES. There is no Federal legislation whereby the Government could reimburse these men for the losses where the cattle are found to be tuberculous?

Dr. MOHLER. No, sir.

Mr. JONES. The only remedy would be by additional legislation?

Dr. MOHLER. Yes.

Mr. McLAUGHLIN of Michigan. I am very sorry, indeed, to hear of this faulty inspection by the Federal authorities, because this morning we were led to believe that the Federal inspection was the only one that could be relied on, and therefore it was necessary to have a Federal appropriation.

Dr. MOHLER. I think that the inspection is more competent than is indicated by the figures. I think Mr. Ricker will admit that the results are no worse since the Federal inspection began than when the State had entire control of the inspection. The difference is that we do not pay any money to Mr. Ricker, and he is objecting because we do not reimburse him for the no-lesion reactors, whereas the State did.

Mr. McLAUGHLIN of Michigan. Mr. Ricker and Mr. Hays both said the percentage of mistakes was less under State inspection than under Federal inspection.

Dr. MOHLER. Have you figures, Mr. Ricker, to prove that?

Mr. RICKER. I have not.

Dr. MOHLER. That is not the point you are making, as I understand, is it?

Mr. RICKER. Not at all.

Mr. McLAUGHLIN of Michigan. I inquired what the percentage was under State inspection as compared with what the percentage was under Federal inspection, and I believe they said they thought it was less under State inspection, but they said they did not have the figures.

Dr. MOHLER. There were two tests permitted under the State inspection. An animal was injected on Monday, and if she reacted she could then be reinjected on the following Monday. But you

never get the same results the second time as the first time, so it has become almost universally accepted that "once a reactor, always a reactor."

Mr. RICKER. May I ask Dr. Mohler a question? I have 20 animals tested in Vermont to-day, and I will bring them down to Brighton next Tuesday, and you will not accept the gentleman's test that you approved of a month ago, so you go to work and test those animals on that shipment within less than a week. Your men go right to work and do that week after week. How are you going to get by that?

Dr. MOHLER. I do not know of any man in Vermont who has been approved by Commissioner Brigham and O. K'd by the bureau whose tests we do not accept after the cattle reach Brighton. Naturally if the charts have been improperly or falsely prepared, or prepared by a man not approved by the bureau, we could not accept them.

Mr. RICKER. I will hand you a few cases.

Mr. JONES. We are here on this appropriation bill, which is a very different matter. This thing can only be cured by new legislation. This is more like the trial of a lawsuit. I suggest that we go on with the matter of this appropriation bill.

The CHAIRMAN. Were you through, Mr. Hays?

Mr. HAYS. I think I might suggest a thought. In talking it over I thought I had prepared a new bill, but it was suggested to me that an amendment could be made to your act. I am not familiar with your practice here, but was told that an amendment could be made so that a part of that \$500,000 which is now appropriated for that purpose could be used.

The CHAIRMAN. It would be new legislation, and subject to a point of order, but if it had sufficient merit the point of order might not be raised. That would be the quickest way to handle it, though I am not sure. We will have to locate the responsibility. If Dr. Mohler will locate the person responsible for this destruction of property, and also ascertain what the ultimate cost will be, I think that will help to clear the matter up. It would probably cost more to take care of this phase than it does to take care of the eradication.

Mr. HAYS. Assuming that there were 131 cattle, the total amount involved would not exceed \$20,000.

The CHAIRMAN. In Boston?

Mr. HAYS. In Boston; so that the aggregate amount could not be large. It is large to the individual, but not as a Federal matter.

The CHAIRMAN. The remedy, of course, would be to have the inspection made before you ship in interstate commerce. Then, it would be up to the State to meet the Federal Government on a 50-50 plan. After it passes the State line the department has no discretion in the matter.

Mr. HAYS. The answer to that is that they retest them at Brighton in most instances. They have the right, and they come down there with the papers and they retest them.

The CHAIRMAN. You mean the Federal Government?

Mr. HAYS. The Federal Government; yes, sir.

The CHAIRMAN. They would not go back on the test made in the State?

Mr. HAYS. If the cattle come from outside of the State, they test them before they leave in their home State. They test them by ap-

proved veterinarians, and when they get down there the State tests them again.

The CHAIRMAN. Under the law they would have to be tested previous to shipment. They might be entitled to reimbursement before the animals entered into certain limits, but, as I understand it, it is simply a matter of convenience. It is very unfortunate, because these gentlemen should be reimbursed; I think we all appreciate that. We are not sure, however, as to the responsibility for the killing. Of course, the Government is in a way responsible for errors made in the inspection, and, if it is possible to improve on that, it is a very important thing and it ought to be done. The committee will take the matter under consideration, and if we can find a way out, we will do so.

Mr. HUTCHINSON. I want to ask about this particular cow. Do I understand, Mr. Ricker, that the cow Mr. Hays spoke of was your cow?

Mr. RICKER. Yes, sir.

Mr. HUTCHINSON. You were offered \$125?

Mr. RICKER. I had her sold for that.

Mr. HUTCHINSON. You lost all control of it and had to take \$32?

Mr. RICKER. Yes. That was one case in 43.

Mr. HUTCHINSON. You had nothing to say as to how it should be sold?

Mr. RICKER. Not a word.

Mr. HUTCHINSON. And the hide, too?

Mr. RICKER. That amount includes the hide and meat.

Mr. HUTCHINSON. It brought more than \$32, did it not?

Mr. RICKER. It did not in our market. The hide brought about 25 or 28 cents per pound at that time.

Mr. HUTCHINSON. Do you know anything about what the animal dressed?

Mr. RICKER. I have the papers at home giving that information.

Mr. HUTCHINSON. You have those papers?

Mr. RICKER. Yes, sir.

Mr. HUTCHINSON. They were given to you?

Mr. RICKER. The slaughterhouse where they were slaughtered sent me a certificate of the slaughter of the animal and a check for \$32.

Mr. HAYS. I think it would be very interesting to the committee to see those papers.

Mr. RICKER. I can send plenty of them in.

Mr. SMITH. I just want to ask one question of Dr. Mohler. Is it safe to assume that if no lesions are found, the animal can be declared free from tuberculosis? In other words, is it not true that the ordinary Government inspection of the tuberculous carcass is really a general and not a special examination, and that if the carcass were dissected which, of course, would destroy the carcass, we would frequently find tuberculous lesions where they are not found in our Government inspections.

Dr. MOHLER. That is true.

Mr. SMITH. Therefore it is not safe to assume where there are no lesions on an animal, that it has not tuberculosis?

Dr. MOHLER. You understand, Mr. Chairman, that our inspectors in their meat-inspection work do not go in to determine whether the carcass has any little nodule or not. They endeavor to determine

whether a carcass is fit or unfit for food. If they found one little tuberculous nodule, this would show why the animal reacted to the tuberculin test, but it would not determine that the carcass was unfit for food. It would still be fit for food. So the Government meat-inspection work is not intended as proof for the accuracy of tuberculin, at least it is not practicable to make it that satisfactory, although we try to get our inspectors to make a most careful examination when these reacting cattle come in, as accurately as they can without destroying the meat, and as a result of that work they find more small and localized nodules when they know they are working on reactors. They go through a great many more lymph glands and cut the lung, liver, spleen, etc., into smaller slices. The result of that closer observation means little from a meat-inspection standpoint, because the carcass can be passed for food even though it may have more localized lesions than are required to make the animal react to the tuberculin test.

The CHAIRMAN. There is a certain deduction.

Dr. MOHLER. Yes, sir.

Mr. WILSON. How many inspectors have you at this yard?

Dr. MOHLER. On the tuberculin inspection?

Mr. WILSON. How many inspectors have made these inspections of these 318 cattle?

Dr. MOHLER. We have about three men now at Brighton stockyard and the State has an equal number.

Mr. WILSON. Do you know whether the same men made all these mistakes or not?

Dr. MOHLER. No. We investigated this several months ago, back in September. The Federal and State inspectors have all been making these tests, and they all average about the same; as I said before, the State had about the same experience. The stockyard is a pretty difficult place for making a tuberculin test. The animals are coming in from more or less lengthy trips on the trains into unfamiliar quarters, they have new attendants, they are watered out of buckets, and it is a great strain on these dairy cattle, some of which have just calved or are about to calve, to have the tuberculin tests applied under such conditions.

Mr. McLAUGHLIN of Michigan. The best thing to do is to require an inspection in the case before they are shipped out.

Dr. MOHLER. That is what I said at the beginning. The solution of this problem, to my mind, is to have certificates issued before the cattle leave the State of origin.

The CHAIRMAN. Doctor, will you investigate the other point, as to the responsibility for the destruction of the animals, and furnish the committee with the data?

Dr. MOHLER. Yes, sir; I shall be glad to do that and insert a statement in the record.

The CHAIRMAN. It will be some time yet before we report the bill. We will give it further consideration.

Mr. HAYS. Would it be agreeable, Mr. Chairman, if I assisted in sending such information as I can obtain?

The CHAIRMAN. We will be very glad to have it.

Mr. HAYS. And if you saw fit, we might bring the chief of the Department of Animal Industry here in person and let him testify

and have the value of his testimony so that we could come here with it.

The CHAIRMAN. We will probably be in session for several weeks. We will be glad to hear you at any time, so as to get the matter straightened out. We would like to have all the facts.

Mr. McLAUGHLIN of Michigan. The chairman has asked Dr. Mohler to get the facts as to just how the business is transacted there. You might take it up with Dr. Mohler and find out just where the responsibility rests.

STATEMENT OF DR. JOHN B. MOHLER, CHIEF OF THE BUREAU OF ANIMAL INDUSTRY, DEPARTMENT OF AGRICULTURE—
Continued.

Dr. MOHLER. At your request, Mr. Chairman, I beg to submit the following statement regarding the tuberculin testing of cattle for interstate shipment at the Brighton public stockyards, after consultation with Dr. E. A. Crossman, inspector in charge at Boston, Mass.:

Prior to July 1, 1919, the tuberculin testing of cattle at Brighton was conducted under the supervision of the Massachusetts Department of Animal Industry. On this date regulation 7 of B. A. I. Order 263 became effective. This regulation required that all cattle moved interstate for dairying or breeding purposes, unless consigned to recognized public stockyards, must be tuberculin tested prior to shipment by an authorized veterinarian of the State or bureau. Accordingly, a conference was held at Boston, where representatives from all the New England States were present, and it was unanimously decided that in justice to the shippers of milk cows into the State of Massachusetts that a public stockyard should be established at Boston, Mass.

In order to accommodate the shippers of cattle who for many years had been making consignments to these yards for weekly sales, the bureau agreed to establish a public stockyard at this point in cooperation with the State officials. The commissioner of the Massachusetts department of animal industry, Dr. Lester H. Howard, proposed to the bureau that the State should furnish an equal number of veterinarians or lay inspectors to those assigned by the bureau. All cattle that passed the tuberculin test were to be tagged with a State tag bearing a serial number and furnished by the State of Massachusetts. These propositions were accepted by the bureau and have been constantly in effect since the establishment of inspection July 1, 1919, at which time four bureau and four State veterinarians and lay inspectors were employed. As the number of cattle to be tuberculin tested decreased the number of veterinarians and lay inspectors decreased accordingly, but on the same basis, i. e., one State employee to each bureau inspector. At the present time three bureau inspectors and three State inspectors are employed at the yards. Prior to July 1, 1919, the State of Massachusetts paid the owner of an animal which reacted to the tuberculin test and where no lesions could be found on post-mortem examination, the full amount of the appraisal. The State department of animal industry was at that time, however, making a charge of 25 cents per animal for applying the tuberculin tests and the money collected from these fees was used to pay for the no-lesion reactors. At the present time no charge is made for these tests at the Brighton yards, and no payment is made for no-lesion reactors. At no time have Federal inspectors "ordered" the reacting cattle killed, nor have such cattle been "slaughtered by order" of the Government.

The supervision of these yards was taken over by the bureau as stated above, in cooperation with the Massachusetts department of animal industry, commencing with the weekly test of July 7, 1919. As a result of investigations made prior to assuming this supervision, it appeared to bureau representatives that the chief objection, if it can be so designated, to the work as it was conducted prior to July 1, 1919, was in the retesting of cattle which had apparently given typical reactions to the tuberculin test. The limitations of tuberculin as a diagnostic agent are well known. Chief among these limi-

tations is the fact that an animal which has once been given a typical reaction frequently fails to react a second time even though a very large dose of tuberculin is injected.

In connection with the testing at the Brighton yards, it must also be pointed out that the cattle are not presented in as nearly normal conditions as is required to secure the best results from the application of tuberculin. Investigations made by the bureau inspectors disclosed the facts that the cattle are improperly watered, are not milked out during the application of the test, are improperly fed or are fed too heavy a ration, and it might also be pointed out that the majority of the animals presented for test are those which have recently calved and in many instances have systemic disturbances which make for unsatisfactory results.

These improper conditions have been pointed out to one of the principal cattle dealers, Mr. W. A. Ricker, St. Johnsbury, Vt., in bureau letters of August 13, August 20, and October 9, 1919. The present knowledge of the bureau is that no steps have been taken to better the conditions.

As a comparison between the work carried on under supervision at these yards and that conducted on the farms in the accredited herd work, the following tables are worthy of note:

Subcutaneous tuberculin tests at Brighton stockyards, under the supervision of Dr. E. A. Crossman (July 1 to Nov. 1, 1919).

Number of animals tested.....	2,968
Number of reactors.....	332
Number of reactors showing no visible lesions.....	105
Number of reactors showing visible lesions.....	217
Percentage showing no visible lesions.....	32.3
Percentage showing visible lesions.....	67.7
Percentage of cattle reacting.....	14.0

Subcutaneous tuberculin tests on farms under the accredited herd plan, under the supervision of Dr. E. A. Crossman (July 1, to Nov. 1, 1919).

Number of animals tested.....	7,724
Number of reactors.....	237
Number of reactors showing no visible lesions.....	8
Number of reactors showing visible lesions.....	159
Percentage showing no visible lesions.....	4.7
Percentage showing visible lesions.....	95.3
Percentage of cattle reacting.....	3.0

This work in both fields is under the supervision of Dr. Crossman, inspector in charge, and is largely conducted by the same employees. It will be observed that under the accredited herd plan the amount of visible lesions found in cattle tested on farms is 95.3 per cent, while the amount of visible lesions found in cattle at the Brighton Stockyards is only 67.7 per cent. There seems to be no reason why such a wide variance of efficiency should be established in the two lines of work, other than those caused by the improper conditions under which these cattle at the yards have been tested.

In addition to the regular testing of cattle at the Brighton yards, it has been necessary to occasionally apply a retest to shipments of cattle that have been previously tested and accompanied by a suspicious test chart, in order to ascertain whether the practicing veterinarians approved to do this kind of work were conducting same in accordance with the regulations of the bureau. These retests have disclosed a number of tuberculous animals that had been classed as free from this disease by the practicing veterinarians applying the tests at the point of origin. It has been found necessary to disapprove one veterinarian for inefficient work, which was only possible to ascertain by applying retests on shipment when they arrived at the Brighton yards.

As a solution of this matter of indemnifying owners for cattle that react to the tuberculin test and fail to show lesions on post-mortem examination, it is suggested that the drovers request the original owners to sign an agreement for the cooperative tuberculin testing of their herds. This is being done by a few of the drovers at the present time, with the result that when reactors are

found, whether or not post mortem lesions are revealed, the drover refers back to the original owner through the live-stock sanitary commissioner. The entire herd is then tested and the owner indemnified partially for the reactors. This method is employed in the State of Vermont. The live-stock sanitary commissioner of the State of New Hampshire has agreed to pay indemnities on this same basis. While the live-stock sanitary commissioner of the State of Maine has not gone on record, it is felt that such a plan would be approved in that State. The bureau would then pay its proportion on such animals condemned, not to exceed \$25 on a grade animal or \$50 on a pure-breed animal.

Mr. McLAUGHLIN of Michigan. Under this tuberculosis item is the proviso "That the Secretary of Agriculture may, in his discretion, under such rules and regulations as he may prescribe, permit cattle which have been shipped for breeding or feeding purposes from one State, Territory, or the District of Columbia to another State, Territory, or the District of Columbia, and which have reacted to the tuberculin test subsequent to such shipment to be reshipped in interstate commerce to the original owner." Some serious difficulty has arisen on that, as shown in this Boston case. Do you think that ought to stand? Has it proven wise to put that into the law.

Dr. MOHLER. That clause has proved very satisfactory and the Secretary has given permission in certain regulations, for only pure-bred cattle to be returned to the State of origin. Almost every State now has a requirement that cattle coming from an outside State must be subjected to a retest 60 days after the animals come into the State of destination.

Mr. McLAUGHLIN of Michigan. But he may permit them all to come without the testing?

Dr. MOHLER. Not unless they are consigned to public stockyards.

The Secretary may, in his discretion under the law which you have just read and under the rules which he has prescribed, permit such cattle as may have reacted to the tuberculin test, to be reshipped to the State whence they came.

Mr. McLAUGHLIN of Michigan. Have you been acting entirely in keeping within this act in permitting such cattle as this cattle dealer spoke of that were not brought in for breeding or feeding purposes, but as milch cows?

Dr. MOHLER. Yes, sir; we have conformed entirely to that act. These milch cows are for breeding purposes as well as for the dairy. That animal of Mr. Ricker was not returning to the State of origin and he made no such request. This provision here is to allow an animal, that came from one State and then found tuberculous in another State, to be returned to the State of origin.

Mr. McLAUGHLIN of Michigan. But it was under that portion of the act that you permitted these cattle to come from different States to Boston without being inspected in the State from which they came. You permitted them to come to Brighton without being inspected and you were only authorized to return those to the State from which they came, those that were brought in for breeding or feeding purposes.

Dr. MOHLER. Mr. McLaughlin, pardon me, but you are mistaken in your interpretation of this paragraph. This paragraph has nothing at all to do with the bringing of that animal from Vermont into Brighton stockyards. That cow was supposedly healthy. Nobody

knew she was diseased until she got to Brighton stockyards and reacted to the tuberculin test. If she were to be returned to Vermont this paragraph would obtain. When that animal was shipped, as I said before, from Vermont to Brighton stockyards nobody knew whether she was going to react or not.

Mr. McLAUGHLIN of Michigan. No, you never do.

Dr. MOHLER. That is true.

Mr. McLAUGHLIN of Michigan. But when you were talking to Mr. Ricker and Mr. Hays about their case, you said the animal could have been reshipped to the State from which it came.

Dr. MOHLER. Yes; under this paragraph.

Mr. McLAUGHLIN of Michigan. Under this paragraph?

Dr. MOHLER. As a pure-bred Holstein she could have been returned to Vermont under our regulations.

Mr. McLAUGHLIN of Michigan. It was not brought in for breeding or feeding purposes.

Dr. MOHLER. All these dairy cows are brought in for breeding purposes. They are dairy cows and are intended for breeding purposes as well as for dairy purposes. A lot of these animals are sold as springers, and as soon as they freshen, they are again bred.

Mr. McLAUGHLIN of Michigan. You are mistaken about that. Mr. Ricker said he had 75 men in different parts of the country buying cattle for him, and evidently he bought cattle that would sell on the market at Brighton. He was bringing in breeding cattle or feeding cattle. He was bringing in anything in the shape of cattle that would sell on the Brighton market.

Dr. MOHLER. For what purpose?

Mr. McLAUGHLIN of Michigan. Any purpose.

Dr. MOHLER. No, sir; that is a dairy cow market, and not a feeder or fat stock market, Mr. McLaughlin. They don't have any and every kind of cattle that you refer to. It is a dairymen's market for the New England States. Those cows are either springers or fresh cattle. I have been familiar with this market for 20 years.

The CHAIRMAN. If they are shipped in for slaughter they can not be returned.

Dr. MOHLER. No, sir.

The CHAIRMAN. If shipped as dairy cows or as breeders or feeders, they may be returned?

Dr. MOHLER. Yes, sir; if pure bred.

The CHAIRMAN. All the dairy cows would come in under this term "breeder"?

Dr. MOHLER. Yes, sir; a great many of them would come in under "springers," and others under "fresh cows."

Mr. McLAUGHLIN of Michigan. Does this work well?

Dr. MOHLER. It has worked very satisfactorily because we have allowed it to be applied only to pure-bred animals, and the reason I say it has worked so well is because so many States have this provision for retesting after 60 days. For instance, pure-bred cows that have gone into Montana from Iowa have been retested 60 days after they were tested in Iowa and have reacted. It may be that these cows are worth little to the man in Montana, but are worth a good deal if returned to the original owner in Iowa,

or the State of origin, for breeding purposes. A gentleman who spoke this morning referred to a \$17,000 bull in Illinois that reacted 60 days after shipping from Oklahoma. He asked this morning about sending that bull back to Oklahoma, because the man that bought him in Illinois don't know how he can finance a diseased bull. He is a young man who can not take care of him under the system of segregation.

Mr. McLAUGHLIN of Michigan. But you say you permit return only in cases of pure-bred animals. Here are a lot of them brought in here not pure bred; shouldn't they have been inspected at the State line instead of being brought to Brighton and being tested there?

Dr. MOHLER. There are no facilities for inspection at the State line—no yard or station or anything of the kind. Here is a carload of 22 animals; you can't put them out in a snowstorm this time of the year at the State line between Vermont and Massachusetts. They have to go to a place where facilities for sheltering, watering, feeding, and testing are available.

Mr. RUBEY. The solution of the question would be to test them at the point of origin or shipment.

Dr. MOHLER. That is the proper thing, and that is what I suggested to Mr. Ricker. He said as he left the stand that he is having less trouble now than in July, because he is having these approved veterinarians do the testing in the State of origin and then shipping the cows to Brighton with proper tuberculin charts, which removes the necessity of having them tested in the stockyards.

Mr. McLAUGHLIN of Michigan. Massachusetts has permitted those cattle to come into that State, and in all probability they are going to stay there. That being true, where is the interest of the Federal Government in them?

Dr. MOHLER. We have no power if they are going to stay in the State.

Mr. McLAUGHLIN of Michigan. Why do you go to inspect them?

Dr. MOHLER. Because they are public yards handling cattle in interstate movement. In case the owner reshipped diseased cows to New York, Pennsylvania, New Jersey or Connecticut, from Brighton yards, our interest would come in very strongly. We wouldn't let diseased cows go out of the Brighton yards for shipment interstate. We haven't the power of course to prevent them from being shipped to any other place within the State.

The CHAIRMAN. What is the question in the Kansas City case?

Dr. MOHLER. That was the question involving the right of the State to make regulations independent of the Federal regulations. It was with reference to a shipment of cattle coming by railroad from Iowa into Missouri, and the State of Missouri had a regulation prohibiting the importation of cattle without a health certificate to protect the livestock of Missouri from foot and mouth disease. The State prosecuted the railroad company for transporting the cattle into Missouri in violation of its regulation, and the State won in the lower court. The higher court, however, reversed the decision and ruled that the State had no power to prescribe regulations in conflict with Federal law, and that the Federal statutes exclusively govern interstate shipments.

The CHAIRMAN. They can only be stopped by the Federal Government?

Dr. MOHLER. Yes, sir.

Mr. HARRISON. Did you call the committee's attention to the fact that we suggested the insertion of the word "hereafter" there so as to avoid the necessity of an annual repetition of this discussion?

Dr. MOHLER. Yes, sir; it is covered in this paragraph.

Mr. HARRISON. It is just a question of shortening the bill.

The CHAIRMAN. Let us get this matter of responsibility for slaughtering the reacting animals out of the way.

Mr. McLAUGHLIN of Michigan. Yes; we don't want to have to stand responsible for the killing of all those cattle.

Dr. MOHLER. The great trouble is in opening the door to all grade as well as pure bred cattle. It is going to allow every little Tom, Dick, and Harry all over the United States, after they have found they have got reacting cattle, to return them and there will be a great deal of trouble for the States to see that they are kept in quarantine.

Mr. McLAUGHLIN of Michigan. You can be quite sure they will not return the cattle, but if you give permission to do it you avoid the necessity of killing it and incurring the liability.

Mr. JONES. If you do not permit them to return it, the only thing to do is to kill it, but if you permit them to return it we won't be responsible?

Dr. MOHLER. Yes; but I think the better way of handling this is to allow these animals to come into the Brighton yards as they have done and if they react, put a button in their ear to show they are reactors and then let Massachusetts do whatever she wishes to do with them.

Mr. JONES. You simply test them and say, "Do what you please with them"?

Dr. MOHLER. Yes, sir. If we do the testing at Brighton and there are any reactors, let the local authorities at Brighton take such intrastate action as they deem proper.

Mr. JONES. If the facts are as Mr. Ricker stated here to-day, I don't see how the Government can avoid the liability there.

Dr. MOHLER. You can take my word for it that our man there never ordered the slaughter of those animals. The State has been doing this ever since the days of the old cattle bureau of Massachusetts.

Mr. JONES. You see, if we start in on a case like that and the Government loses out, you will have lawsuits here at the rate of \$20,000 a year.

Dr. MOHLER. I am satisfied that none of our men ordered the cattle killed.

Mr. McLAUGHLIN of Michigan. Suppose you found that the cow did react. Before the State of Massachusetts would assume the responsibility for killing her they would order her examined by their authorities, too, wouldn't they?

Dr. MOHLER. Yes, sir; they might, but they don't cooperate that way.

Mr. McLAUGHLIN of Michigan. And suppose your conclusion differed from the conclusion of the authorities of Massachusetts, what then?

Dr. MOHLER. We wouldn't allow that cow to go into interstate shipment.

Mr. McLAUGHLIN of Michigan. You have a way of preventing that?

Dr. MOHLER. Yes, sir.

Mr. McLAUGHLIN of Michigan. Wouldn't that be the way to do it?

Dr. MOHLER. I think that is much better than opening wide the door to all kinds and conditions of cattle.

Mr. McLAUGHLIN of Michigan. And not order your men to slay them?

Dr. MOHLER. I don't think they have done it. The gentlemen merely thought that was the way it was handled, but when I asked them how it was done before the 1st of July they stated it was the same procedure as prevails now. We have a very fine man of long experience in charge at Boston, and I am satisfied he is too wise to order the slaughter of those animals. However, we can stop him if he is doing so.

(Thereupon, at 5.30 p. m., the committee adjourned until 10 o'clock Thursday morning, December 11, 1919.)

COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Thursday, December 11, 1919.

The committee met at 10 o'clock a. m., Hon. Gilbert N. Haugen (chairman) presiding.

The CHAIRMAN. Dr. Mohler, you may proceed.

BUREAU OF ANIMAL INDUSTRY—Continued.

**FURTHER STATEMENT OF DR. JOHN R. MOHLER, CHIEF OF THE
BUREAU OF ANIMAL INDUSTRY, DEPARTMENT OF AGRICULTURE.**

Dr. MOHLER. Gentlemen, last evening when you adjourned the hearings we were discussing the tuberculosis item. I think we have had a very complete discussion of this particular item.

The CHAIRMAN. We went over that thoroughly yesterday. Unless there is something you desire to add to what was said yesterday, we will pass it.

Dr. MOHLER. Here is a statement that I might put in the record indicating the amount of indemnity and expenses that have been incurred. Several members requested this information.

(The statement referred to follows:)

Claims recorded in the Tuberculosis Eradication Division for indemnity for cattle slaughtered from July 1, 1919, to Dec. 5, 1919.

State.	Number of cattle.	Total amount of appraisal.	Average amount appraisal per head.	Total amount of salvage.	Average amount of salvage per head.
Connecticut.....	25	\$2,310.00	\$92.40	\$664.15	\$26.56
District of Columbia.....	3	300.00	100.00	105.50	35.16
Idaho.....	59	15,834.00	268.37	2,401.59	40.70
Illinois.....	9	1,000.00	177.77	799.81	88.86
Indiana.....	98	24,905.00	254.13	5,544.68	56.57
Iowa.....	478	140,095.00	293.08	26,243.75	54.90
Kansas.....	65	16,135.00	248.23	3,333.26	51.28
Kentucky.....	46	9,515.00	206.48	1,734.10	37.69
Maine.....	19	2,320.00	132.63	593.99	31.26
Maryland.....	270	27,500.00	101.85	11,676.30	43.24
Michigan.....	85	21,155.00	248.88	4,481.66	52.72
Minnesota.....	286	24,830.00	86.81	11,723.51	40.99
Missouri.....	26	6,351.80	244.30	1,465.75	56.37
Montana.....	174	15,325.34	88.07	3,695.52	21.23
Nebraska.....	109	26,757.00	245.47	5,822.42	51.58
New York.....	90	25,645.00	284.98	4,522.85	50.25
Nevada.....	155	21,291.07	137.36	7,487.17	48.30
North Carolina.....	98	16,227.50	165.58	4,207.10	42.92
North Dakota.....	30	2,200.00	73.33	1,279.01	42.63
Ohio.....	83	12,645.00	152.34	3,968.10	47.80
Oklahoma.....	99	24,390.00	246.36	3,763.40	38.01
Oregon.....	23	3,655.00	158.91	724.21	31.48
Pennsylvania.....	128	35,855.00	280.11	6,545.20	51.13
South Carolina.....	28	3,130.00	111.78	1,279.53	45.69
South Dakota.....	158	39,190.00	248.03	7,613.44	48.18
Utah.....	2	250.00	125.00	33.60	16.80
Vermont.....	488	50,947.00	104.39	10,985.61	22.51
Virginia.....	38	5,070.00	113.42	880.96	22.92
Washington.....	225	27,775.00	123.44	7,237.66	32.16
West Virginia.....	45	5,200.00	115.55	1,222.75	27.17
Total.....	3,442	608,603.64	176.82	141,836.58	41.20

State.	Difference between appraised value and salvage.	Total amount of State indemnity.	Average amount of State indemnity per head.	Total amount of Federal indemnity.	Average amount of Federal indemnity per head.
Connecticut.....	\$1,645.85	\$1,104.84	\$44.19	\$511.01	\$21.64
District of Columbia.....	194.50	.....	.....	60.84	20.28
Idaho.....	13,432.41	2,231.96	37.82	2,231.96	37.82
Illinois.....	800.19	228.96	25.44	228.96	25.44
Indiana.....	19,360.32	5,607.26	57.21	3,893.54	39.62
Iowa.....	113,851.25	25,499.77	53.34	17,986.47	37.62
Kansas.....	12,801.74	5,353.83	82.36	2,479.81	38.15
Kentucky.....	7,780.90	3,438.60	74.45	1,452.02	31.56
Maine.....	1,926.01	901.01	47.42	477.86	25.15
Maryland.....	15,823.70	5,274.81	19.53	5,274.81	19.53
Michigan.....	16,673.34	7,235.00	85.11	3,845.12	45.23
Minnesota.....	13,106.49	9,876.07	34.53	3,292.03	11.51
Missouri.....	4,886.05	902.02	31.69	902.01	34.69
Montana.....	11,629.82	11,655.08	61.23	3,608.59	20.73
Nebraska.....	21,131.54	4,205.17	38.57	4,205.17	38.57
New York.....	21,122.15	8,638.75	95.98	3,666.02	40.73
Nevada.....	13,803.83	5,938.75	38.31	3,636.65	23.46
North Carolina.....	12,020.40	2,825.02	28.82	2,824.72	28.82
North Dakota.....	920.99	613.99	20.46	307.00	10.23
Ohio.....	8,676.90	5,930.84	71.45	2,726.05	32.84
Oklahoma.....	20,626.60	10,313.68	101.17	4,913.79	49.93
Oregon.....	2,980.79	953.20	41.44	755.84	32.86
Pennsylvania.....	29,309.80	7,076.61	55.28	4,859.51	37.96
South Carolina.....	1,850.43	616.83	22.02	616.83	22.02
South Dakota.....	31,576.56	9,872.44	62.48	5,215.24	33.19
Utah.....	216.40	72.13	36.06	72.13	36.06
Vermont.....	29,450.98	25,124.70	51.48	13,029.30	26.69
Virginia.....	4,189.01	919.05	24.18	831.26	21.87
Washington.....	20,537.34	5,454.94	24.24	5,297.03	23.64
West Virginia.....	3,977.25	2,540.14	56.44	1,192.95	26.51
Total.....	456,256.61	170,405.52	49.50	100,474.52	29.19

The CHAIRMAN. I wish you would put in a statement giving the number of applications on file that have been made to the department.

Dr. MOHLER. I will furnish that.

(The statement referred to follows:)

Progress of the tuberculosis eradication campaign, Nov. 15, 1919.

States.	Under supervision.		Accredited.		Passed one successful test.		On waiting list to be tested.	
	Herds.	Cattle.	Herds.	Cattle.	Herds.	Cattle.	Herds.	Cattle.
Alabama.....	198	7,830	21	887	1,931	12,303	7	426
Arkansas.....	38	1,039			20	286		
Colorado.....	5	176			2	41		
Connecticut.....	58	2,737	6	104	31	639	5	145
Delaware.....	18	800	4	126	3	28	5	170
District of Columbia.....	84	817	7	252	16	339		
Florida.....	562	9,117			431	5,514	100	2,500
Georgia.....	456	12,602	6	289	356	8,180		
Idaho.....	4	103	4	128	188	1,497	6	146
Illinois.....	422	10,332	21	686	195	4,779	161	3,650
Indiana.....	324	5,497	54	1,150	212	4,490	54	1,787
Iowa.....	615	20,291	1	29	255	4,868	241	7,388
Kansas.....	353	16,248	11	176	166	6,066	127	6,606
Kentucky.....	293	7,249	28	761	187	3,261	46	1,125
Louisiana.....	571	12,158	4	69	125	1,849	75	1,500
Maine.....	852	10,450	100	1,339	622	6,745	88	1,308
Maryland.....	405	7,542	29	720	182	2,753	40	800
Massachusetts.....	62	1,957	10	235	35	728	4	281
Michigan.....	278	8,117	46	1,354	127	2,747	27	583
Minnesota.....	1,402	34,198	250	6,863	825	17,953	439	11,000
Mississippi.....	1,166	14,736	18	483	1,227	11,310		
Missouri.....	147	3,888			109	2,256	219	7,445
Montana.....	994	19,424	23	1,017	121	3,765	15	650
Nebraska.....	193	5,651	6	256	106	2,296	41	1,235
Nevada.....	1	22			12	132	10	330
New Hampshire.....	27	710	2	39	15	376	12	371
New Jersey.....	42	2,290	6	163	20	565	4	180
New York.....	200	6,369	9	224	69	2,126	45	3,000
North Carolina.....	1,027	10,022	52	1,139	945	5,847	5	100
North Dakota.....	859	16,535	110	2,827	591	9,491	6	265
Ohio.....	854	15,736	64	1,467	512	8,879	32	407
Oklahoma.....	54	2,364			11	298	25	877
Pennsylvania.....	643	9,978	47	787	469	5,484	193	2,864
Rhode Island.....	24	393	2	35	12	121	3	44
South Carolina.....	203	7,321	17	536	136	3,331	19	494
South Dakota.....	215	4,863	6	199	214	2,706	8	234
Tennessee.....	449	9,386	35	1,158	185	5,977	45	867
Utah.....	28	723	15	580	885	7,018	22	462
Vermont.....	1,031	23,035	32	793	222	5,417	898	14,839
Virginia.....	1,172	25,210	263	7,018	605	8,975	20	400
West Virginia.....	166	2,636	8	310	86	998	87	1,502
Wisconsin.....	648	16,551	38	1,005	373	18,987	98	3,404
Wyoming.....	3	36			2	28		
Total.....	17,006	367,239	1,355	35,204	12,838	191,428	3,233	79,492
Oregon.....	2,144	29,593	24	612	2,232	28,713	12	351
Washington.....	2,207	24,432	12	389	1,271	12,733	12	351
Grand total.....	21,447	421,264	1,391	36,205	16,341	232,874	3,257	80,194

The CHAIRMAN. We ought to have a complete statement in reference to that. That is one of the important items.

Dr. MOHLER. I will also submit a list of maximum State indemnities. Both Mr. Jones and Mr. Hutchinson requested some information about indemnities, so I had this list made up last evening.

(The matter referred to follows:)

Statement showing maximum indemnity paid by States for tuberculosis cattle destroyed and approximate amount of State funds for fiscal year 1920.

State.	Maximum indemnity.		Approximate State funds available for tuberculosis work, fiscal year 1920.
	Pure bred.	Grade.	
Alabama.....	()	()	\$5,000
Arizona.....	( )	( )	.....
Arkansas.....	( )	( )	.....
California.....	()	()	50,000.00
Colorado.....	( )	( )	.....
Connecticut.....	\$125.00	\$100.00	30,000.00
Delaware.....	()	()	10,000.00
Florida.....	()	()	25,000.00
Georgia.....	()	()	5,000.00
Idaho.....	50.00	25.00	25,000.00
Illinois.....	50.00	25.00	50,000.00
Indiana.....	80.00	40.00	50,000.00
Iowa.....	80.00	40.00	100,000.00
Kansas.....	()	()	10,000.00
Kentucky.....	200.00	100.00	80,000.00
Louisiana.....	( )	( )	.....
Maine.....	100.00	75.00	40,000.00
Maryland.....	50.00	25.00	15,000.00
Massachusetts.....	40.00	40.00	50,000.00
Michigan.....	100.00	50.00	100,000.00
Minnesota.....	112.50	45.00	118,000.00
Mississippi.....	40.00	20.00	5,000.00
Missouri.....	50.00	25.00	90,000.00
Montana.....	500.00	500.00	150,000.00
Nebraska.....	50.00	25.00	37,500.00
Nevada.....	200.00	75.00	25,000.00
New Hampshire.....	75.00	50.00	15,000.00
New Jersey.....	75.00	75.00	30,000.00
New Mexico.....	65.00	45.00	5,000.00
New York.....	112.50	67.50	182,100.00
North Carolina.....	50.00	25.00	10,000.00
North Dakota.....	80.00	40.00	25,000.00
Ohio.....	225.00	100.00	100,000.00
Oklahoma.....	300.00	100.00	75,000.00
Oregon.....	50.00	35.00	30,000.00
Pennsylvania.....	70.00	40.00	100,000.00
Rhode Island.....	50.00	37.50	15,000.00
South Carolina.....	50.00	25.00	10,000.00
South Dakota.....	100.00	50.00	25,000.00
Tennessee.....	100.00	25.00	25,000.00
Texas.....	50.00	.....	20,000.00
Utah.....	50.00	25.00	11,250.00
Vermont.....	112.50	75.00	100,000.00
Virginia.....	80.00	40.00	15,000.00
Washington.....	50.00	25.00	50,000.00
West Virginia.....	180.00	80.00	30,000.00
Wisconsin.....	45.00	20.00	250,000.00
Wyoming.....	()	()	15,000.00
Total.....	.....	.....	2,211,850.00

¹ No indemnity.

² No limit, county pays.

³ No limit.

Summary.—State indemnity paid in 39 States. Average maximum State indemnity is \$102 for pure-bred cattle and average for grade cattle is \$60.

The CHAIRMAN. We would be glad to have all you have on the subject.

Dr. MOHLER. During the last fiscal year tuberculosis eradication work gained much popularity in the United States, and as the result of the demand for the work Congress increased the annual appropriation from \$500,000 per annum to \$1,500,000 per annum, \$500,000 of which was to be set aside for operating expenses and \$1,000,000

for indemnities. Congress evidently desired to keep pace with the demand for this work and to furnish to the live-stock owners of the United States full cooperation. As a matter of fact, however, the amount of cooperation the bureau has been able to give during the present fiscal year is little more than for the previous fiscal year.

During the previous year the work was more concentrated; we did not undertake to spread it into every State because of the limited amount of funds provided, but when the various States appropriated over \$2,200,000 our force was built up so that we could partially cooperate with practically every State. However, when the first third of the present year had passed, we found that we had spent almost \$200,000 or at the rate of \$600,000 for operating expenses, whereas only \$500,000 was available for operations. Likewise only \$52,000 were spent for indemnities in the first third of the year, or at the rate of less than \$200,000 per annum, which means a return of \$800,000 to the Treasury. Therefore, on November 8, 1919, the services of 20 veterinary inspectors assigned to tuberculosis eradication work were terminated. Immediately protests were sent in from the States from which these employees were discontinued. In a few instances arrangements were made to retain them. We are now confronted with an overexpenditure for the balance of the year of \$100,000 for operating expenses, and unless immediated relief is received it will be necessary to further reduce our forces at the rate of \$20,000 per month. This means terminating the services of approximately 100 inspectors.

Cooperation furnished by the States: The 45 States with which we are cooperating in tuberculosis-eradication work have an aggregate of approximately \$2,200,000. In cooperation with those States there were under supervision to November 15, 1919, 21,447 herds; up to the above-mentioned date there were fully accredited 1,391 herds of cattle; in addition to that number there were 16,341 herds which had passed one successful test in preparation for being accredited; in addition to those herds there were over 3,200 herds whose owners had signed the agreement placing their herds under supervision so that they might be accredited in accordance with the uniform plan. In many of the States it has been necessary to refuse to accept any more agreements from owners, on account of an insufficient number of inspectors to make tests.

The accredited-herd plan: This plan was adopted December, 1917, by the United States Live Stock Sanitary Association upon a recommendation from a joint committee representing the pure-bred cattle associations and live-stock sanitary officials. The plan was approved by the bureau December 23, 1917; therefore, the plan has been in operation less than two years and it is safe to say that it is the most-talked-about plan of eradicating tuberculosis that exists in the world.

It is a simple plan and any person who reads it will readily understand it. It has been approved by every pure-bred cattle association in the United States. After two years of practical operation it was referred to a joint committee representing the same association; this committee met in Chicago, December 2, 1919, and after a thorough consideration of the subject it was the unanimous decision of the joint committee that no steps should be taken to lower the high standard of the present plan.

Eradication of tuberculosis from areas: In a number of States campaigns have been carried on during the present fiscal year to eradicate tuberculosis from circumscribed areas, such as counties. This work will increase very rapidly during the next fiscal year. The question now is: What credit can be given to the cattle owners of such territory when they have eradicated tuberculosis? It will be a gross injustice to them to keep them in the same status as States, wherein it is known that tuberculosis exists extensively. It is recommended that when a county has demonstrated that it has eradicated tuberculosis of live stock that the interstate movement of cattle from such an area should be permitted without a tuberculin test.

Eradication of tuberculosis from swine: During the present fiscal year a number of investigations have been made as to the origin of tuberculous shipments of swine to official establishments. In numerous instances the bureau has been able to trace these tuberculous shipments from the killing floor back to the farm where they have originated and a campaign undertaken to eradicate tuberculosis from such farms.

We have made satisfactory advancement in perfecting our system of obtaining information so that we can trace a larger percentage of tuberculous shipments. This work will be carried on more extensively during the next year and should develop into a very complete system of tracing shipments from packing centers to farms and exterminating the disease where found.

The next item is, on page 46, No. 62, "for all necessary expenses for the eradication of the southern cattle tick." This appropriation calls for no increase. I do not know whether you would like to review the work done during the last year, but I might say that up to and including December 1, 1919, we released from quarantine 62 counties and 33 parts of counties, constituting an area of 50,555 square miles.

Mr. TINCER. You say you have released that territory. Is there a decrease in the appropriation?

Dr. MOHLER. No, sir; for the simple reason that although we have released 14 counties in Alabama, 9 in Arkansas, 18 in Georgia, 11 in Louisiana, 3 in Oklahoma, and 7 in Texas, there still remains 219,581 square miles to be released. That means this territory which is in red [indicating on map] is still to be cleaned up and released from quarantine.

The CHAIRMAN. Kindly indicate the States.

Dr. MOHLER. I thought I would leave this table.

The CHAIRMAN. Your table gives that?

Dr. MOHLER. Yes; with the amount of territory that has been released and the amount still left in quarantine, giving the percentage. We have now cleaned up 70 per cent of the infested territory; we still have 30 per cent to clean up, and the hardest work is coming in this open-range country of Texas and Florida.

Mr. LEE. At this rate it will take about seven years, will it; something like that?

Dr. MOHLER. We are figuring on about 1923.

Mr. LEE. That is earlier than I expected.

Dr. MOHLER. Yes; but of course that is only an estimate.

Mr. TINCER. What is the policy? You enforce a quarantine where they have the ticks?

Dr. MOHLER. We enforce no local quarantine; the State enforces the local quarantine and we regulate interstate shipments from the quarantined area.

Mr. TINCHER. What do you mean by releasing?

Dr. MOHLER. We dip these cattle from the early spring, say from the 1st of April, until the end of November, every 14 days. After the cattle show up without ticks on them and the territory is thereby cleaned of ticks, we take the territory out of quarantine by releasing it, so that those cattle that have been cleaned can then go to the other States without any restrictions whatever.

Mr. TINCHER. You lifted that quarantine some place in Texas, and a lot of those cattle were shipped into Greenwood County, Kans., last summer?

Dr. MOHLER. Yes.

Mr. TICHNER. And the tick showed up and ruined four or five good cattlemen up there.

Dr. MOHLER. It did not ruin them, did it?

Mr. TINCHER. Yes; that transaction practically bankrupted one of the best cattle men in Greenwood County, because he had a forty or fifty dollar loss on steers anyway, and then he had to dip them and abandon a pasture for which he was paying \$14 a head for the entire season, which was just too much for him. I have his name. They have several other men in Greenwood County who were severely injured by that proposition. Does the Government do anything for these men who have a right to rely on the proposition when the quarantine is lifted?

Dr. MOHLER. There were two breaks from Texas shipments last summer. One was the result of dipping in crude oil, which failed to kill all the ticks, the oil being permitted during the war period in lieu of arsenic, our regular dipping material, which was commandeered by the Government for warfare gas. The other was where cattle came from a clean territory in Western Texas, and picked up the infection going through a local stockyard. They picked up these ticks when little bits of mites, almost microscopic in size, and nobody saw these seed ticks until they developed. When the cattle got to their destination those little mites had become big enough to be seen, and then the State put a quarantine on the cattle until the animals were free from these ticks. They were dipped several times and most of them have come out satisfactorily. One of these breaks occurred in West Virginia and the other in Kansas. I did not know that anybody was ruined, because I understood from Mr. Mercer there were only a few deaths that had occurred.

Mr. TINCHER. That is the fact.

Dr. MOHLER. And if only two or three deaths occurred I do not see how it could ruin the person.

Mr. TINCHER. I do not know whether it is a Government or State regulation, but here is an expensive pasture, where the man is paying \$14 a head for the pasture; what regulation requires him to take his cattle out of that pasture?

Dr. MOHLER. That was probably done by the State Department. We do not require them to take the cattle out of the pasture at all. We have not any portion of Kansas under quarantine for ticks. In fact, Mr. Mercer was afraid we might put the counties under quarantine, but I told him as long as they would take care of it locally we

would not put any Federal quarantine on that section of Kansas. I believe he put the quarantine on and the results were very satisfactory.

Mr. LEE. In other words, instead of forcing them to take the cattle out of the pasture, they are forced to leave them in the pasture?

Mr. TINCHER. No; they take these cattle which they dip out of that pasture and keep all other cattle out of that pasture. That is the only way——

Dr. MOHLER. That is done to keep the disease from spreading. But you say he had a loss before they reached that stage; he had a loss of \$40 or \$50 a head on the market value of the cattle.

Mr. TINCHER. Oh; exactly.

Dr. MOHLER. I do not think the ticks ruined him, because Mr. Mercer informed me there were only a few deaths.

Mr. TINCHER. But here is what the ticks do: If you have to dip the cattle out in that country and abandon a \$14-a-head pasture, you add that to the loss all these men suffered last summer. We all hear people testify about the high price of meat, but we know that the men that handled three or four-year-old steers this year took that loss.

Dr. MOHLER. Yes; that is true.

Mr. TINCHER. I have heard, Doctor, in a roundabout way, that Mercer wanted to come before the committee on some occasion in reference to that. Has he said anything to you?

Dr. MOHLER. Not about coming here. In fact, all he said to me was he had heard in a roundabout way that I was going to quarantine Federally those few counties in Kansas. When he was here in Washington in the fall on some other business he stopped in to find out whether his information was true, and I told him, as long as they took care of it locally, the Federal Government had no intention of putting a Federal quarantine on that section of Kansas.

We put our men in there and inspected the cattle, and made them apply double dipping. After two dips they can go anywhere.

Mr. TINCHER. He made them take the cattle out of that pasture and not let any other cattle in there this season. He may have overdone the thing; I do not know.

Dr. MOHLER. I do not believe he did.

Mr. TINCHER. There were three or four other men whom it affected, too, and it was most disastrous to those three or four men.

Dr. MOHLER. Such unfortunate happenings are bound to occur as long as we have the Texas fever tick with us.

The CHAIRMAN. What is being done to clean up the yards?

Dr. MOHLER. We always clean up the stockyards, after we find them infested, by disinfecting with antiseptic solutions.

The CHAIRMAN. Cattle from these infected districts go through the stockyards?

Dr. MOHLER. We have two kinds of pens, clean pens and native pens. The native pens are pens for the cattle with the ticks on them and the clean pens are pens for the cattle that have been dipped or are from clean territory. It very frequently happens that a cow pony of the trader riding around the stockyards will carry a few ticks on the legs. These ticks are apt to drop off in clean

territory, lay eggs which hatch out and then three or four thousand ticks are born and they crawl around into clean or any other kind of pens. It is a very tedious job to keep clean pens in infected territory, so that there is no possibility of ticks being scattered from the native pens to the clean territory.

Mr. TINCHER. Where we appropriate money, what do you men spend it for?

Dr. MOHLER. We have 280 men working in these nine States and we pay their salaries, pay their traveling expenses, and the stationery and incidentals of that kind. We do not pay for any construction of vats or the purchase of any of the dips. That is all done by either State or county appropriations. Now the various States have 373 employees and the counties have 1,552 employees. This shows you how we are getting cooperation from the States. When this work started, a number of years back, we were the ones that had the largest number, just like we have to-day on the tuberculosis eradication. The States and counties have come along fast and they are furnishing more employees than the bureau; they are furnishing about eight to our one. The various expenses in 1919 are all stated on page 47. Here is the full statement, Mr. Tinchler, of the expenditures for 1919: Salaries, \$512,166; stationery, \$1,793; traveling expenses, \$125,519; equipment and material, \$5,658; telephone and telegraph service, \$1,103; miscellaneous items, \$15,942, and wages, \$1,440.

Mr. TINCHER. I do not want to appear in the attitude of being against this appropriation; I think it is a very important one. I want to make a suggestion to you, however, that might be of value to you. Your inspectors ought to be cautioned about one little thing I know of. For instance, a man shipping a trainload of cattle from Texas, from a clean district, say, up into Kansas, has to unload at certain stations. There is no excuse for that inspector letting the railroads persuade him to hold a trainload of cattle in the yards for two or three days under the claim that he is looking for ticks when, as a matter of fact, he is doing it to accommodate some railroad employee who wants to use a car some place else. I had two trainloads of cattle held last fall at a station in Oklahoma, and I had to go there and stay five or six days (they were delayed to that extent), and when I got there I found the Government inspector holding them there to investigate for ticks.

Dr. MOHLER. There was no excuse for that at all.

Mr. TINCHER. And when I got on the job myself, I found he was simply holding them to accommodate the railroad, to let them accommodate some one else with the cars. It is purely a car situation. However, the intimation gets out, up in my neighborhood, that my cattle have come from yards where there is some question on about ticks being present. You can not be too careful about some fellow creating the impression that a man has ticks in his cattle. I found out this fellow——

Dr. MOHLER. If you will give me his name, I will find out about it, because there is no occasion for having the cattle held to investigate for ticks for two or three days.

Mr. TINCHER. He was just doing it to accommodate the railroad.

Mr. LEE. I should think it would be to the interest of the railroads to unload quickly.

Mr. TINCHER. They unloaded my cattle.

Dr. MOHLER. Is that the unloading for feed, rest, and water?

Mr. TINCHER. Oh, yes, they had to; but they were sparring along because they were up against it for cars.

Dr. MOHLER. Five hours is enough for them to investigate for ticks.

Mr. TINCHER. It did not hurt the cows, except the stigma of there being ticks there, and it prevents you from suing the railroad for damages and does away with your claim for delay.

Dr. MOHLER. Mr. Chairman, if there is nothing further on this item I shall leave the chart here showing the progress in tick eradication, to which Congressman Lee referred.

Mr. LEE. I do not think there is any more important work for our country than this field of work.

Mr. TINCHER. I do not want it done away with.

Mr. LEE. And I think the best thing in the world, if we had the money to do it, would be to go on and complete this thing in two or three years.

Dr. MOHLER. During the present year we have released from Federal quarantine the following area:

States.	Counties.		Square miles.	States.	Counties.		Square miles.
	Whole.	Part.			Whole.	Part.	
Alabama.....	14	10	12,901	Oklahoma.....	3	8	4,346
Arkansas.....	9	6	8,130	Texas.....	7	5	8,847
Georgia.....	18		6,942				
Louisiana.....	11	4	9,299	Total.....	62	33	50,555

Satisfactory progress is being made and a greater interest than heretofore is being manifested in tick eradication which is indicated by the increase in the amount of funds provided by the State and county authorities. Sufficient Federal funds should be provided for this project in order that the bureau may adequately cooperate with the States and counties requesting assistance during 1921.

The Alabama and Louisiana authorities hope to complete the eradication of ticks during the next year and are making plans accordingly. The bureau is unable to furnish adequate supervision to all the counties in Georgia that are now ready for systematic cooperative tick-eradication work. Under the State law of Texas compulsory tick eradication becomes effective on January 1, 1920, in zone 2, which will require considerable additional assistance from the bureau. It is also expected that bureau assistance will be requested for many counties in Florida during the next fiscal year. Additional information covering the entire work up to date is contained in attached statement of the progress in tick eradication from July 1, 1906, to December 1, 1919:

Progress in tick eradication, July 1, 1906, to Dec. 1, 1919.

State.	Counties infected July 1, 1906.	Counties infected Dec. 1, 1919.		Counties released.		Area infected July 1, 1906.	Area infected Dec. 1, 1919.	Area released.	
		Whole.	Part.	Whole.	Part.				
	Number.	Number.	Number.	Number.	Number.	Square miles.	Square miles.	Square miles.	Per cent.
Alabama.....	67	4	8	55	8	51,279	4,825	46,454	91
Arkansas.....	75	15	8	52	8	52,525	10,638	41,887	80
California.....	15	.....	.....	15	.....	79,924	.....	79,924	100
Florida.....	51	45	.....	6	.....	54,861	45,216	9,645	18
Georgia.....	151	47	.....	104	.....	57,438	20,764	36,674	64
Kentucky.....	2	.....	.....	2	.....	841	.....	841	100
Louisiana.....	65	7	.....	58	.....	45,409	5,033	40,376	93
Mississippi.....	81	.....	.....	81	.....	46,362	.....	46,362	100
Missouri.....	4	.....	.....	4	.....	1,386	.....	1,386	100
North Carolina.....	75	19	1	55	1	37,365	7,691	29,674	79
Oklahoma.....	61	5	3	53	3	47,890	9,282	38,608	81
South Carolina.....	44	.....	.....	44	.....	30,495	.....	30,495	100
Tennessee.....	42	.....	.....	42	.....	16,987	.....	16,987	100
Texas.....	198	123	4	71	4	191,835	114,346	77,539	40
Virginia.....	30	3	1	26	1	13,918	1,696	12,232	88
Total.....	960	288	25	668	25	728,565	219,581	509,084	70

¹ Only portions of 5 of the 61 counties were quarantined.

Areas released during the calendar year 1919 amounted to 50,555 square miles.

The next item is the dairy division work to which Mr. Rawl has already referred, and we will see that his testimony comes in its proper position in the record. Mr. Rommel will come next. He is not here just now, so I will complete my statement. He will be here in a few minutes, and I will see that his testimony also gets in its proper position.

The CHAIRMAN. Thank you, Dr. Mohler.

TUESDAY, DECEMBER 9, 1919—AFTERNOON SESSION.

STATEMENT OF MR. B. H. RAWL, ASSISTANT CHIEF OF THE BUREAU OF ANIMAL INDUSTRY AND CHIEF OF THE DAIRY DIVISION, DEPARTMENT OF AGRICULTURE.

Mr. HARRISON. As Mr. Rawl is compelled to leave the city to-night I shall appreciate it if you will hear his statement this evening with reference to item 63, on page 48, "for all necessary expenses for investigations and experiments in dairy industry," etc.

The CHAIRMAN. We will be glad to hear you, Doctor.

Mr. McLAUGHLIN of Michigan. Give your name in full.

Mr. RAWL. B. H. Rawl, Chief of the Dairy Division, and Assistant Chief of the Bureau of Animal Industry.

Now, I suppose it is your wishes to review first the proposed items of increase and then give some consideration to the work in progress; is that satisfactory?

Mr. McLAUGHLIN of Michigan. Take your own way about it.

Mr. HARRISON. The practice has been, Mr. Rawl, to make a general statement to the committee about the work as a whole and then a specific statement about the increases which the department is requesting.

Mr. RAWL. Our activities are very much the same as heretofore. The division of the funds, \$350,370, I have here in detail if you wish

it, showing exactly what work is done under each project. I can not review all projects except in a general way, unless you want to give considerable time to this division.

Mr. McLAUGHLIN of Michigan. Is that in such form that it can go into the record?

Mr. RAWL. Yes.

Mr. McLAUGHLIN of Michigan. I think that should be put into the record.

Mr. RAWL. I shall keep it for the time being; I may want to refer to it.

Mr. McLAUGHLIN of Michigan. You would wish it to go into the record?

Mr. RAWL. If you wish it.

Mr. McLAUGHLIN of Michigan. We would like to have it.

(The statement referred to follows:)

Dairy division allotment, fiscal year 1920, \$350,370.

Dairy administration: Administration, including all activities in the division that serve the division as a whole, such as files, stenographic force, dairy engineering, dairy statistics..... \$37, 675

Dairy extension:

Supervision	9, 420
Southern dairying	10, 250
Northern dairying (cow testing)	30, 295
Bull associations, extension	11, 740
Community development in dairying	1, 800
Cow-testing association investigation	3, 300
Bull associations investigations	3, 600
	<u>70, 405</u>

Dairy manufacturing:

Supervision	11, 480
Creamery extension	8, 460
Cheese factory extension	10, 090
Creamery management investigations	6, 680
Renovated butter inspection	6, 240
Navy butter inspection	1, 000
	<u>43, 950</u>

Dairy research laboratories:

Supervision	2, 760
Ice-cream investigations	3, 800
Butter and by-products	10, 380
Milk condensing	7, 120
Bacteriology of milk	10, 170
Nutrition of dairy cows	8, 640
Metabolism of dairy cows	3, 650
Manufacturing and ripening cheese	14, 970
Silage investigations	3, 820
	<u>65, 310</u>

Market milk investigations:

Supervision	4, 680
Dairy sanitation investigations	3, 280
Cost of handling milk	5, 480
Cost of milk production	11, 410
Dairy sanitation extension	13, 740
	<u>38, 590</u>

Dairy experiment farm, including experimental work on the farm:	
Supervision and maintenance-----	\$30, 995
Housing and care of cattle-----	2, 820
Feed production-----	3, 925
	<u>37, 740</u>
Western dairy extension:	
Supervision-----	4, 260
Dairy farming-----	19, 860
Milk work-----	3, 600
Dairy manufacturing-----	7, 280
	<u>35, 000</u>
Improvement of dairy products-----	15, 000
Dairy cattle breeding-----	6, 700

Mr. RAWL. To review the work in a general way, the dairy division activities are divided into two large groups. One relates to the extension or the carrying out of information that is developed from time to time and aiding in its application. That is shown in the organization of cow-testing associations, bull associations, etc. It is shown also in demonstrating at certain factories new methods for the manufacture of products that I will speak of later. The extension activities of the dairy division are reduced, we think, to the very minimum, considering the character of the service that is rendered. I may add just a word here on the question that is often raised whether or not we were duplicating the work of the extension service in sending out specialists along different lines. We believe that the activities of this kind are reduced as low as they can be and get into effective use the information that the department is developing. Some of you will remember that I have in the past referred to the department's work in the southern mountains developing the cheese factories. Here is a chart showing its growth [displaying chart to the committee]. In 1915 we started the development of cheese in the southern mountains, away back in the mountains of Tennessee and North Carolina and West Virginia. We have four men in that field, employed jointly by the State extension departments and the Department of Agriculture.

One of the items here is for \$5,000 for cheese work of a similar character in the Western States.

Mr. McLAUGHLIN of Michigan. Do you carry that kind of work on in sections?

Mr. RAWL. Yes.

Mr. McLAUGHLIN of Michigan. How many different sections have you carried on the work in?

Mr. RAWL. Only one, of this particular kind of work.

Mr. McLAUGHLIN of Michigan. And now you are prepared to take it up in other sections?

Mr. RAWL. Yes; in the Western States, in the Rocky Mountains. You know cheese production is dependent a good deal on climatic conditions, cool weather, cool water, etc. The western part of the country contains some splendid cheese territory. This chart shows the development of a new cheese industry in the southern mountains, a territory equally difficult to develop as any region perhaps in the Western States.

Mr. JONES. Is that gross production in dollars and cents?

Mr. RAWL. Yes. It shows that in 1915 it was \$3,000; in 1916, \$50,000—I am giving you round figures; in 1917, \$116,000; in 1918, \$158,000; and in 1919, \$289,000. Of course, this is a comparatively small industry, but since it developed from nothing four years ago the showing made is very good. In time apparently there is likely to be a substantial cheese industry throughout all that mountain region as a result of this work.

Mr. JONES. Do I understand that in those States—

Mr. RAWL (interposing). North Carolina, Virginia, Tennessee, West Virginia, Georgia, and South Carolina.

Mr. JONES. There was no cheese production?

Mr. RAWL. No.

Mr. JONES. And in 1915 there was a cheese production in North Carolina mountain section that was \$3,000?

Mr. RAWL. Yes; you are correct.

Mr. JONES. And also in 1915 there was no cheese production in the other States?

Mr. RAWL. No.

Mr. JONES. And then in 1916 you added Virginia, Tennessee, and West Virginia?

Mr. RAWL. Yes.

Mr. JONES. And in 1917 there was cheese production in the same States?

Mr. RAWL. Yes.

Mr. JONES. And in 1918 you added Georgia?

Mr. RAWL. Yes.

Mr. JONES. And in 1919 South Carolina?

Mr. RAWL. Yes.

Mr. JONES. In order to have the records show up better, I should judge you ought to put in the record the production of one of the States; take North Carolina, for example; in 1914 there was nothing; in 1915, \$3,000; in 1916, \$43,000; in 1917, \$84,000; in 1918, \$114,000; in 1919, \$220,000?

Mr. RAWL. Yes.

Mr. McLAUGHLIN of Michigan. Why not put that in the record?

Mr. RAWL. I should like to do that, if you desire it. If you want to see the number of factories, here is another chart. I though this was the best way to show you exactly what we want to do in the Rocky Mountain district.

Value by years of southern cheese sold since factories were organized.

	1915	1916	1917	1918	1919
North Carolina.....	\$3,000	\$43,000	\$84,000	\$114,000	\$220,000
Virginia.....		8,000	20,000	24,200	30,000
Tennessee.....		2,000	9,000	12,300	18,000
West Virginia.....		2,500	3,000	7,600	16,000
Georgia.....				700	4,400
South Carolina.....					1,200
Total.....	3,000	50,500	116,000	158,800	289,600

Growth of the cheese industry in the southern mountains since the establishment of the first factory in 1915.

	1915	1916	1917	1918	1919
North Carolina.....	3	6	19	25	32
Virginia.....		1	8	9	7
Tennessee.....		2	5	6	7
West Virginia.....		1	1	1	2
Georgia.....				1	3
South Carolina.....				1	1
Total.....	3	10	33	43	52

Mr. ANDERSON. What did you have to do with this? You are taking credit for all this; what did you have to do with it?

Mr. RAWL. I didn't have much to do with it, except to get good men and see that they did their work well. This work was done in cooperation with the North Carolina State extension department.

Mr. JONES. Following out Mr. Anderson's suggestion, what did your people do to follow this?

Mr. RAWL. The work was begun by a man going into this territory and showing them how to organize a little cheese factory costing \$300 to \$400. Under his guidance the first factory was started in 1915. Since that time these cooperative employees have guided the development of the cheese-factory business in that region and taught the local men how to make cheese.

We now want \$5,000 for this kind of work in the Western States.

Mr. TINCHER. You are only asking for \$5,000?

Mr. RAWL. That is all.

Mr. McLAUGHLIN of Michigan. You are going into a territory in which no cheese has been made?

Mr. RAWL. In places some cheese is being made now. We are working there in cooperation with the State agencies. As to just where this additional work will be done will depend on circumstances.

There is another item of \$20,000 in connection with the educational work to take care of increased cost of transportation, supplies, and travel, and to increase bull association work. These associations have proven to be one of the best means of increasing dairy production.

From all standpoints the increasing of the production of the cows of this country is the most important of all considerations before both the producer and the consumer.

Economy of production is based more than anything else upon the quantity of production. The surest and cheapest way to increase the production of our herds is to use good sires. Our herds are small, averaging not more than five cows. Cow-testing associations can reach the herds of 10 or more cows, but can not the herds of 5 or less.

There are not a half million good bulls in the United States, but there are over 5,000,000 farms, on which the 24,000,000 cows are kept. This means that to secure the full use of the good bulls it will be necessary that the same animals be used on more than one farm. This can be accomplished by cooperative bull clubs.

The scheme permits of a rotation of the bulls and the continuance of the services of good bulls for several years without inbreeding. The bull club is practical and has been demonstrated to be successful.

It provides a good bull at a much lower cost than a poor one under the present system. It is believed to be the best way of instructing the small producers not only in better breeding, but in better feeding and management.

The department started the bull association work as an extension project in 1915, and since that time associations have been organized in 27 States.

During the first several years the funds for bull associations were used in investigating methods of organization, by-laws, and details of carrying on such organizations. The present expenditures for bull association work amount to \$15,340 per year.

The total increase for the dairy division is \$40,430, but taking into consideration the transfers to the statutory roll, it will amount to \$11,720 more.

Mr. McLAUGHLIN of Michigan. This is a matter that does not require much knowledge or skill. This bull business has been going on since the beginning of time. How do you justify the Federal Government going into that?

Mr. RAWL. In this way: The organization of bull associations is highly specialized extension work and to be successful requires experienced men.

Mr. McLAUGHLIN of Michigan. Is that strictly true, Mr. Rawl? I have heard of bull associations in different parts of the country for many years.

Mr. RAWL. In 1908 there were 3, and at the present time there are 78. That is all of this type of organization now—78 in the United States. We find that by sending men out that are capable and experienced in this work that they can introduce it.

Mr. ANDERSON. How many men have you had working on this proposition?

Mr. RAWL. Five.

Mr. ANDERSON. How long?

Mr. RAWL. We started out with one man four years ago and increased last year to five.

Mr. McLAUGHLIN of Michigan. You said, I believe, that the county agents, could not to the best advantage carry on that cheese work, and I thought perhaps that was true; one must go who knows something about making cheese.

Mr. RAWL. To get it established.

Mr. McLAUGHLIN of Michigan. But couldn't the county agent make the suggestion to the farmers that they organize into an association and buy some bulls?

Mr. RAWL. Yes; they could; a county agent that understood it—there is no big secret about it, but they do not. Now, it takes some force to get the farmers interested in it and to put it through.

Mr. TINCHER. What do county agents do?

Mr. RAWL. Almost everything. Their duties are numerous; they are supposed to deal with all agricultural questions, and, of course, they must have aid in these special lines.

Mr. TINCHER. If they are any good and they need a bull association in their country, they will organize a bull association, won't they?

Mr. RAWL. I wouldn't say that. Of course, the county agencies have not been in existence long enough so that we can have a supply

of the best men. A county agent's work is about as responsible as any we have in agriculture.

Mr. TINCHER. Couldn't you publish this information in pamphlet form and ask them to organize in this manner? It would be cheap, and wouldn't it be just as effective?

Mr. RAWL. My judgment is it would not be as effective. We now publish and send to the county agent every detail concerning the organization and management of such associations.

Mr. JONES. Couldn't you get up a prospectus telling them how to go about it and explaining what you wanted them to do?

Mr. RAWL. Yes; we do this, but the county agents need more assistance; they must have the help of some one experienced in such organization until one such association is in successful operation. Even after this the assistance of such an experienced person is often sought by the county agent.

Mr. LESHER. There are some associations in Pennsylvania who are doing this with hogs and have hog associations.

Mr. RAWL. Yes; and the whole purpose here is to induce the county agent to organize such associations and to aid him in carrying them on.

Mr. RUBEY. What do you pay these men?

Mr. RAWL. From \$1,800 to \$2,340.

Mr. RUBEY. Do they go to the county and into the territory?

Mr. RAWL. Yes.

Mr. RUBEY. And they stay about a little while and work it up and then go to another county?

Mr. RAWL. They pick a county which is adaptable and where the association is feasible, and then they try to organize one and stay in the county as long as necessary.

Mr. JONES. The county agent does not flop around like that; he stays in the county?

Mr. RAWL. The county agents' work is restricted to the county in which he is located.

Mr. JONES. Are they paid anything by the State?

Mr. RAWL. Yes; some of the men on bull associations are paid jointly by the department and the States but we have three men exclusively on our pay rolls.

Mr. JONES. The amount of salary you mentioned was the total salary?

Mr. RAWL. Yes.

Mr. RUBEY. Yes; I was asking about our own men.

Mr. McLAUGHLIN of Michigan. Mr. Rawl, I can see how you might do good and might properly carry on this work by issuing publications and issuing bulletins and publications, but I am a little at a loss how you justify hiring a number of men to go around into the States to induce the people to organize bull associations; why is that a Federal function?

Mr. RAWL. Exactly for the same reason that it was necessary a few years ago for the Department of Agriculture to induce the people to start county agent work. It is the department's function to exercise leadership and branch out in the development of such systems as are for the good of the people.

Mr. McLAUGHLIN of Michigan. A few years ago when the county agent feature was advanced the people were very much surprised at:

the idea that the Federal Government would furnish money enough to furnish a county agent for each county in the country; they thought that was a wonderful proposition, and we are proceeding to that end. The Lever law is in force; it is growing in amount, and the number of men employed is increasing year by year; but we find as we are getting to that plan of having a man for each county in the country it still is necessary for us to have an expert go out and talk bulls, an expert to talk teas, an expert on this, that, and the other thousand and one different things, to go out and confer with and encourage the county agents. There are so many of them that they go around arm in arm, and in bunches in the country, each one an expert in his own line, neither one must interfere with the other one, and it seems to me we are carrying this expert business to a ridiculous extent and becoming very paternalistic.

Mr. RAWL. The Department of Agriculture believes that the need of its service by the people is just as great to-day as it was years ago. As we go forward our problems increase. Take this sire work. Our department has put on a publicity campaign that has been published in the papers all over the country, regarding the use of better sires. At the present time not more than few sires in use in our dairy herds produce daughters whose production is greater than that of their dams, and exceedingly few that are able to produce daughters of greater production than good dams.

Mr. TINCHER. That is pure, unadulterated carelessness on the part of the herdsmen, and that is not with reference to the expense, because it is cheaper—

Mr. RAWL (interposing). It is cheaper, under proper conditions, to own a good bull. But this is the condition that exists now.

Mr. TINCHER. Can the department in any way, with any amount of men, do anything to cure that situation?

Mr. RAWL. I think it can do a great deal to cure it.

Mr. TINCHER. Your idea is for the farmers to organize, so as to use the same sires?

Mr. RAWL. To begin with; yes; the best sires.

Mr. TINCHER. As a matter of fact, the sires, if taken care of, would cost practically nothing when they are calves. Each man could have his own bull and have a good one.

Mr. RAWL. The farmers often do not think they can. The calves, of course, do cost considerable—the real good calves. We think bulls are not good enough to use unless there is reason to believe they can sire daughters yielding 400 pounds of fat in a year. They will cost now about \$400 to \$500 apiece. The chief point in all this is that there are more than 5,000,000 farms with dairy cows, and there are, perhaps, not a half million good bulls in the whole United States. We can not hope, therefore, to improve herds rapidly in this country unless concerted action is taken to induce farmers to cooperate in the ownership of the good bulls we do have. It is wasteful to have one good bull on a farm with five cows when he could just as well serve similar herds on 10 farms, and by the system of rotation, as is the plan in the bull association, they would be available for not only two years but for eight or more years.

Mr. TINCHER. The States that have agricultural colleges are working on the same lines?

Mr. RAWL. Yes.

Mr. TINCHER. And carrying out into the counties the same ideas?

Mr. RAWL. Yes.

Mr. TINCHER. Comparatively few States have gone as far as we have?

Mr. RAWL. Few States have taken up full association work.

Mr. TINCHER. Don't you think what they ought to do is to encourage the owner, no matter how small his herd, to own a sire?

Mr. RAWL. No. Where a man has only two or three head of cows, it is perfectly feasible for a dozen or more such men to own one good bull.

Mr. HUTCHINSON. Before you get away from this I want to ask one question. I notice the appropriation is increasing all the time; you have \$40,000, or better this time, and still the price of butter and cheese is going out of sight; do the two follow each other; the more we give you, the higher the prices?

Mr. RAWL. Hardly, sir. We hope that some of the work we are doing will at least help to reduce prices.

The CHAIRMAN. What is your opinion of the present butter prices; how do they compare with the prices of other commodities?

Mr. RAWL. I have not reviewed that specifically in the last few months, but they are probably not out of line.

Mr. HUTCHINSON. Butter at 82 cents a pound is not out of line?

Mr. RAWL. Not when the prices of feed and labor are considered.

The CHAIRMAN. Does it compare favorably with other products?

Mr. RAWL. Generally speaking it does.

The CHAIRMAN. What does butter sell for at the creameries; not the retail prices?

Mr. RAWL. I don't know exactly what the quotations are, but they range around 74 cents in the New York market and 72 cents in Chicago.

The CHAIRMAN. At the creameries in the country?

Mr. RAWL. No; at the points mentioned.

The CHAIRMAN. All summer?

Mr. RAWL. No; at the present time. Butter has ranged from 48 cents in Chicago and 49½ cents in New York up to 74 cents, wholesale.

The CHAIRMAN. It has been below 50 cents a pound?

Mr. RAWL. Yes; in July. If you want some data on this, may I suggest that you ask the Bureau of Markets for it. That bureau is, of course, in closer touch with the market than we are.

The CHAIRMAN. I would like it in the record in connection with this. The question is raised all the time about the farmers robbing the country on the prices of butter. I want a comparison between that and other commodities.

Mr. RAWL. I stated that I did not believe that butter was out of line when the cost of feed, labor, etc., were considered.

The CHAIRMAN. It is certainly out of line with some commodities; it is low.

Mr. RAWL. You mean too cheap?

The CHAIRMAN. Yes. What is the average production per capita?

Mr. RAWL. There are about 16,000,000 to 17,000,000 pounds of butter produced in the Nation, and something over 100,000,000 of our people—

The CHAIRMAN (interposing). How many pounds per cow?

Mr. RAWL. According to 1910 census it was about 160 pounds per cow.

The CHAIRMAN. Take 160 pounds at 50 cents per pound, that would be per cow \$80? Do you contend that you can keep a cow a year for \$80?

Mr. RAWL. No, sir; but I am against that kind of cow. You can't feed a good cow and feed her as much as she needs for \$80 a year at the present time.

The CHAIRMAN. What does it cost to feed a cow if you are to buy the feed?

Mr. RAWL. I can not give you that at the present.

The CHAIRMAN. It seems to me that is a very important thing to know.

Mr. RAWL. The cost varies in different parts of the country.

The CHAIRMAN. The price of butter is higher than before; twice as high; about 30 cents a pound difference at the creamery?

Mr. RAWL. Yes.

The CHAIRMAN. Labor is about four times as high as it ever was; a wagon is three times as high, and everything the farmer buys is three or four times as high, and yet butter is about twice as high as it was.

Mr. RAINEY. In other words, the chairman of the committee feels that the farmer should get twice as much for butter as he is getting.

Mr. RAWL. I am sorry that I am not now prepared to give you that.

Mr. ANDERSON. Have you a bunch of cows at Beltsville?

Mr. RAWL. Yes; our books will show exactly what it costs to feed those cows. We have some cows that cost three or four times as much as the average cow.

The CHAIRMAN. How much does it cost?

Mr. RAWL. A cow that produces 800 pounds of fat will eat three or four times as much as some that produce 300 pounds.

Mr. McLAUGHLIN of Michigan. Have you a cow that produces 800 pounds of fat?

Mr. RAWL. We have one that produced 856 pounds, and we have a heifer that produced 756 pounds, and some heifers that produced five to six hundred pounds of fat.

The CHAIRMAN. How much are those cows worth?

Mr. RAWL. That would be only a guess.

The CHAIRMAN. What is the profit on the investment on your 800-pound cow?

Mr. RAWL. An 800-pound cow, ordinarily, if of good type and breeding, will bring \$2,000 or \$3,000; often more. I think the heifers I speak of would readily bring that amount.

The CHAIRMAN. What would be the profit, figuring the expenses, on your investment?

Mr. RAWL. The value of such animals depends largely on their use for breeding purposes. However, cows kept for butter production should produce 300 to 400 pounds butter fat per year and even when grades are worth from \$150 to \$300.

Mr. ANDERSON. You are keeping cows out there, aren't you?

Mr. RAWL. Yes.

Mr. ANDERSON. You know how much it costs to keep them?

Mr. RAWL. Yes.

Mr. ANDERSON. We want to know how much profit you have from those cows.

Mr. RAWL. I shall be glad to furnish you data showing what it costs to feed these cows, but can not do it offhand.

Mr. McLAUGHLIN of Michigan. What is the breed of those cows?

Mr. RAWL. They are Holsteins, the ones I have been speaking of.

Mr. RUBEY. You keep them for breeding purposes?

Mr. RAWL. We are using them in a fundamental breeding experiment.

Mr. TINCHER. I notice on this item it covers the inspection on the investigation of the dairy interests in various States, the inspection of renovated butter factories and markets. I wondered whether that was any duplicating section there when you finally get your bill through, Mr. Hutchinson?

Mr. HUTCHINSON. I was going to ask the Doctor if he has any knowledge how much butter is in storage?

Mr. RAWL. I did not quite understand your question?

Mr. TINCHER. I guess it is hardly a proper question; I wondered whether there would not be a double inspection under that cold-storage law.

Mr. RAWL. There is not at the present time.

Mr. TINCHER. Before you pass that, if the Hutchinson bill for a cold-storage inspection should become a law, which it probably will before we attack this bill, there will be a duplicate law for inspection, will there not?

Mr. RAWL. I couldn't tell you; I am not familiar enough with the details of the Hutchinson bill to answer that question.

The CHAIRMAN. What is this \$29,850 for?

Mr. RAWL. That is for research work, largely on dairy products, that I shall review briefly. When we work out an improved method for manufacturing a product, in order to get it into use it is necessary to go to certain factories and introduce it. It is necessary to do this also in order to carry the experimental work to a final completion. We begin in the laboratory on a problem and then go to the factory where we have commercial conditions, then we seek to introduce the final results into commercial plants.

In 1914 there was imported to this country from Switzerland over 22,000,000 pounds of Swiss cheese. This is one of the most popular of the foreign cheeses, and it is believed that the manufacture of this product in this country would greatly increase the consumption of cheese.

The Dairy Division has investigated the manufacture of Swiss cheese over a period of years, and has been successful in isolating the culture that produces the flavor and eyes, and has also been successful in using another culture which controls the development of the first-named culture.

The organisms of the type known as bacillus bulgaricus are introduced into the milk, and these control the fermentation and also inhibit the growth of other organisms, especially gas formers, and perhaps also make conditions favorable for the flavor producers.

The second culture which was discovered in the laboratories here is known definitely to produce the flavor and the eyes.

Check cheeses made from the same milk and under the identical conditions, but without culture, are without eyes and the characteristic Swiss cheese flavor.

In Europe and this country the making of Swiss cheese has up to this time been uncertain and only a relatively small percentage of the cheese made is the typical Swiss. At the Grove City Creamery, the management of which is under the supervision of the Dairy Division, Swiss cheese has been made on a large scale from milk received once a day and sometimes two days old. All of it is of the typical Swiss flavor and has the typical eyes.

Recently delegates from Ohio spent some time at the Grove City plant, and reported that they received their milk twice a day; yet they lose as high as 75 per cent of their cheese.

One of the very large New York manufacturers recently sent his head maker to Grove City to spend a week there. This manufacturer will use cultures and will provide curing rooms after the style of those at the Grove City Creamery. They report that under their present arrangement they lose much of their cheese.

A large manufacturer of Swiss cheese in Pennsylvania recently arranged to put in refrigerator and temperature control similar to those installed at Grove City.

Mr. McLAUGHLIN of Michigan. You made Swiss cheese in the department several years ago satisfactorily, didn't you?

Mr. RAWL. Yes; we did this by taking samples of cheese of high quality and using them as starters, and we got good results. Later on we succeeded in isolating the organisms. Only within the last year or two have we known exactly what organisms are necessary to produce the characteristic Swiss flavor and eyes.

Mr. McLAUGHLIN of Michigan. Can you find the organisms you speak of in the milk?

Mr. RAWL. Sometimes we do and sometimes not; that is where the importance of the work comes in.

Mr. McLAUGHLIN of Michigan. Do you have to go outside?

Mr. RAWL. What we do is to grow them outside and put them into the milk to make sure they are there. But the isolation of them is going to be of great value.

Another feature is our Roquefort-cheese work. Until now Roquefort cheese has never been made successfully in America; it has been tried for years. We have now developed methods of making a high grade of Roquefort from cow's milk. In France sheep's milk is used. The sample of Roquefort I have here shows what has been accomplished in this direction using cow's milk.

We get only about 6,000,000 pounds or so from France, but the imported French Roquefort is now selling at \$1.25 a pound. Cheese like this sample has been recently offered for sale in New York and Washington and brought 90 cents wholesale.

Mr. McLAUGHLIN of Michigan. Your product.

Mr. RAWL. Our product; the very first that was ever made, and this is the first that was ever made outside of a Roquefort-cheese cave in France.

Mr. RUBEY. Where is this made?

Mr. RAWL. In a factory at Grove City, Pa.; operated under our supervision.

Mr. McLAUGHLIN of Michigan. Your method of doing that is to send a man there and work with them?

Mr. RAWL. In Pennsylvania it is a factory where we have a working arrangement, and which is under our control. We are now in a position to send an inquirer to this factory, where he can see this method in use. Many people will avail themselves of the opportunity.

The CHAIRMAN. Tell us about the cave and the process.

Mr. RAWL. What we do is simply to take rooms and insulate them and maintain a temperature of about 50 degrees, and also maintain a saturated atmosphere; the condition in the French cave. Under these conditions the cheese is cured five or six months.

Mr. RUBEY. Does it take five months to do it this way?

Mr. RAWL. Yes; about five months.

This is not a very big industry now. It is a question whether our market should pay \$1.25 for the imported products, or a similar price for our own. By the development of a reliable method of making Roquefort in this country we can no doubt cheapen the cost of production, and this will be good for the industry as well as for the consumer. That is what we are trying to do.

The CHAIRMAN. What is the cost of making this at the present time?

Mr. RAWL. We have not gone far enough to establish these costs.

The CHAIRMAN. What is the Roquefort made of?

Mr. RAWL. A good grade of cow's milk.

Mr. McLAUGHLIN of Michigan. They are pretty far advanced in these matters in Wisconsin; had they successfully made Roquefort?

Mr. RAWL. No.

Camembert is another cheese we have done some work on. We have not developed a new method as in the case of the Swiss and Roquefort, but that is not necessary.

Mr. JONES. Have you found in that factory you are operating in Pennsylvania that it can be made for commercial use?

Mr. RAWL. We have made 10,000 pounds of Roquefort so far.

Mr. JONES. On that \$5,000 item you say three States; what three States are contemplated?

Mr. RAWL. In the Rocky mountain region. I don't know exactly what States, as yet.

In the production of butter I have mentioned to you before the possibility of utilizing skimmed milk. About one-half of our milk supply is devoted to butter production—about 40,000,000,000 pounds in round numbers. The factory as a rule buys the fat which constitutes about one-third of the solids and leaves the remainder for the farmer to use as best he can. Some of the skim milk is needed back home for young live stock. We could utilize 15,000,000,000 or 20,000,000,000 pounds of skimmed milk for human food if we developed the method for doing so and if the industries will take hold of it and develop the market for these products. The problems involved are numerous. Skimmed-milk powder is one of the products into which it can be made. This is a small industry as yet, consisting of only 10,000,000 or 12,000,000 pounds a year, but the food value of skimmed-milk powder is very great. Many problems concerning it are yet to be solved.

Another problem that we have been greatly interested in lately is the recovery of an edible albumen from whey. There is produced

annually in the United States as a by-product of the manufacture of cheese and casein approximately 3,249,000,000 pounds of whey.

This contains approximately 162,000,000 pounds of milk sugar, 32,500,000 pounds of proteins, of which about one-half is lact-albumen, and 26,000,000 pounds of ash constituents. All of this is very valuable food material. At the present time, it is largely fed to pigs and calves but for the most part in a very inefficient manner. A small amount is utilized in making milk sugar for which there is a limited market. Considerable quantities are absolutely wasted. We are now attempting to separate in a marketable form the proteins which have much the same chemical composition and physical properties as the white of egg. By a process involving concentrating, filtering, and drying a powder is obtained which contains all of the proteins and a small part of the sugar and ash constituents.

In this process about 1.2 pound of powder is obtained per hundred pounds of whey with about 4 pounds of milk sugar as a by-product. The crude milk sugar has at the present time a market value of about 15 cents per pound.

Preliminary baking tests have shown that this powder has the physical properties of egg white and in some ways is superior to egg white. Cakes made with the whey powder have a more satisfactory crust and retain moisture better than those made with egg. One pound of the powder will replace about 30 eggs in cake making.

On account of the lack of suitable machinery it has not been possible to determine the cost of manufacture.

There is little doubt, however, that it can be made to sell in competition with eggs at present prices.

The CHAIRMAN. How much will that cost?

Mr. RAWL. I don't know. I am not sure that it is feasible yet, but we have a process that looks practicable, though it has not been put to a final test.

In the ordinary process of making milk sugar the albumen is heated and filtered out. It is a strong-smelling congealed substance like an egg when it is cooked. This process that we are working on takes the albumen out in the uncongealed form, after which it is reduced to the form of a powder. The feasibility of this method is yet to be determined, and if the cost of production is low enough there is a possibility, at least, of this being very useful.

These are some of the problems we are working on.

Mr. McLAUGHLIN of Michigan. You spoke about the sugar in the milk. What form is it in? Does it resemble ordinary sugar?

Mr. RAWL. Somewhat.

Mr. McLAUGHLIN of Michigan. Has it the quality of ordinary sugar?

Mr. RAWL. Milk sugar has not the sweet taste of cane sugar. Its food value I believe is practically the same as cane sugar.

Mr. McLAUGHLIN of Michigan. In these problems you are working out are you making progress enough, you think, to justify the continuance of the appropriation for the work?

Mr. RAWL. Yes.

Mr. McLAUGHLIN of Michigan. How much money do you want for that?

Mr. RAWL. We want \$29,850, deducting from this a part of the sum transferred to the statutory roll. This does not cover milk

sugar alone, but all the additional by-products work we have discussed, including albumen, condensed milk, etc.

Mr. JONES. That is in this amount you are asking for?

Mr. RAWL. Yes.

Mr. JONES. As I understand you, you think there is a possibility of taking out of the whey the albumen, the sugar that is taken—

Mr. RAWL. Yes.

Mr. JONES. Sugar is taken out?

Mr. RAWL. Yes. Quite a commercial product.

Mr. JONES. I think you will find in late years it is used for child food.

Mr. RAWL. Yes.

Mr. JONES. I think all the leading child specialists are advocating it as a child food.

Mr. RAWL. The condensed-milk business is another branch that needs investigation. Our production jumped up from less than a half million pounds in 1909 to 1,675,000,000 pounds in 1918.

Mr. McLAUGHLIN of Michigan. In what year was the half million?

Mr. RAWL. That was 1909. We produced a great deal of condensed milk during the war and a great deal of it was imperfect.

The CHAIRMAN. The war had something to do with the demand, didn't it?

Mr. RAWL. Yes.

The CHAIRMAN. Will the demand keep up?

Mr. RAWL. The demand has kept up to date in a surprising way, very much more than we expected, but we are unable to tell what it will do in the future.

A lot of the condensed milk landed in Europe was spoiled and a lot here has spoiled. We ought to do a lot more work on condensed milk. It is a big industry and numerous intricate problems are involved.

Mr. McLAUGHLIN of Michigan. Condensed milk was made all right and kept all right many, many years ago. Have they forgotten how to do it?

Mr. RAWL. No. They have always had losses.

Mr. JONES. I think the war created such a demand for condensed milk that a lot of people who didn't know how to make it went into the business.

Mr. RAWL. That is true. There have been for many years some flarebacks with the very best manufacturers in this country. One of the defects in condensed milk is known as "buttons." On opening a can of condensed milk a little button would be found.

Mr. McLAUGHLIN of Michigan. What does that indicate?

Mr. RAWL. Such milk is unsaleable. It is due to a mould. We think we are getting at the cause of it.

There is a tremendous possibility for usefulness along these lines in building and strengthening the dairy industry and our agriculture as well. Developing these processes with increased efficiency will make the products cheaper to the consumer. I don't believe from what we know about Roquefort cheese, for example, that it will be necessary for the consumer to continue to pay the high price per pound that he does at present. But isn't it just to assume that the more we learn about improved methods the safer the business can be made and ultimately the more economically conducted?

The CHAIRMAN. Will you tell us something about casein?

Mr. RAWL. We have made quite extensive investigations on casein, directed primarily to the use of buttermilk, because buttermilk was a big by-product with us, and the sweet milk formerly used in making the better grade of casein is too valuable a food. Our interests have been to save sweet milk to eat and to manufacture it into something for that purpose, like powder, milk sugar, and albumen.

The CHAIRMAN. You say it is a good, wholesome product?

Mr. RAWL. Good skimmed milk makes—

The CHAIRMAN. I mean this casein.

Mr. RAWL. No; casein isn't a food. Paper makers like to use casein made from sweet skim milk. Such milk is not cheap enough to make the manufacture of casein attractive. We have tried, therefore, to develop a method for making good casein from buttermilk. We did a good deal of work during the war on making a casein for glue for aeroplane work. Considerable progress was made.

The CHAIRMAN. Can you extract it from milk?

Mr. RAWL. No; if it is removed from milk there is nothing but whey left. It is the substance of which cheese is made, taken out and dried. A large amount of our casein has been imported.

The CHAIRMAN. Milk contains 4 per cent of casein, does it not?

Mr. RAWL. Yes. Casein once dry is as hard as ivory. It is used for making glues, but more largely, perhaps, for glazing papers. The paper glazers have never taken very kindly to our buttermilk product. The manufacture of casein has not been an attractive business here under normal conditions ordinarily, because the price is too low to make the kind that the user wants. Does that answer your question, Mr. Chairman?

The CHAIRMAN. Do they mix much casein with butter?

Mr. RAWL. That isn't the general practice. Of course, it is illegal.

The CHAIRMAN. Butter has some casein in it?

Mr. RAWL. Yes.

The CHAIRMAN. About one-half per cent?

Mr. RAWL. No.

The CHAIRMAN. One and one-half or 2 per cent?

Mr. RAWL. One and one-half or 2 per cent.

The CHAIRMAN. Could any considerable amount be added to butter?

Mr. RAWL. It could be added.

The CHAIRMAN. That would detract from the palatability of it, would it not?

Mr. RAWL. Yes; it would result in a poor quality and would be classed as adulterated.

The CHAIRMAN. And practically nothing is being done with it?

Mr. RAWL. No; we hear of cases in which milk powder was added to butter, but this is not honest business.

The CHAIRMAN. What is it worth a pound?

Mr. RAWL. Before the war it was worth about 7 or 8 cents. During the war it ran up to about 22 or 23 cents.

The CHAIRMAN. It would lessen the cost of butter?

Mr. RAWL. Yes. If anybody could put it in and get by with it he could make money.

The CHAIRMAN. What is the observation with reference to casein?

Mr. RAWL. If we could make casein out of a product like buttermilk that would be good enough for glazing paper a lot of people would make it. At present the paper makers want a casein made from skim milk, which is too valuable to be used for this purpose. We have a product that is good made of buttermilk, but the paper makers are slow in using it. The Bureau of Standards says it is entirely satisfactory and gave good results in glazing paper, but the paper maker hasn't yet been willing to accept it.

Casein is a cheap by-product from a plant making other things.

The CHAIRMAN. How about the \$5,000 for dairy experiment work in the Western States?

Mr. RAWL. We would like to use some of these funds for developing cheese making in the Rocky Mountain region.

The CHAIRMAN. That has reference to Roquefort cheese?

Mr. RAWL. No.

The CHAIRMAN. What cheese do you begin with?

Mr. RAWL. Usually we begin with cheddar, the simplest style of American cheese. After they gain experience they can learn to make other cheeses.

Mr. HUTCHINSON. You said a while ago you would investigate the price of making butter.

Mr. RAWL. That should come from the Bureau of Markets. That bureau can give you these butter prices for every day in the year.

Mr. HUTCHINSON. I notice here in the last part of this item "For all necessary expenses for investigational and experimenting in dairy industry, cooperative investigations of the dairy industry, in the various States," these words "inspection of renovated butter factories and markets," etc.

Mr. RAWL. Those words have been in there a long time; "renovating butter factories and markets." A clause under the oleomargarine act covers the work we do with renovated butter, the approval of cartons, inspection of factories, and the collecting and testing of samples found on the markets. It is done through the meat-inspection service largely whenever there is meat inspection in the town where there is a renovating butter factory.

Mr. HUTCHINSON. You don't go to the butter prices at all?

Mr. RAWL. No. I would suggest that you secure from the Bureau of Markets a statement on butter because they can do it so much more readily than we can.

The CHAIRMAN. What is the next item?

Mr. RAWL. That is all I think of, sir. I might add this in closing: The dairy industry of this country is of enormous importance. The amount of money we are asking for dairying, \$390,800, is small compared to the size of the industry and its relation to the public welfare. I have told you something of the results secured. We desire to continue and to extend our research. This increase is needed also, in order that more men can be available to aid the factories in applying the methods of which I have been speaking.

Mr. HUTCHINSON. You cooperate with the county agents?

Mr. RAWL. We cooperate with everybody who will cooperate with us. I feel so keenly what dairying means economically and what it means to agriculture that it seems to me after all the department's activities the funds devoted to dairying are comparatively small when the great work involved is so significant.

The CHAIRMAN. There is plenty to be done in the cheese market. I want to congratulate you on your success with this Roquefort cheese.

Mr. RAWL. That is the first that has been made commercially. (Thereupon, at 5.45 p. m., the committee adjourned until 10 o'clock Wednesday morning.)

THURSDAY, DECEMBER 11, 1919.

AFTER RECESS.

The committee reassembled at 2 o'clock p. m., pursuant to recess.

The CHAIRMAN. The committee will come to order.

Mr. HARRISON. Mr. Rommel, Chief of the Division of Animal Husbandry, is here, and he will present the item which appears on page 51. You will recall that we passed over that item when Dr. Mohler was before the committee.

The CHAIRMAN. Is Dr. Mohler through with his statement?

Mr. HARRISON. Yes, sir.

The CHAIRMAN. Then we will hear from you, Dr. Rommel, if you are ready.

STATEMENT OF MR. GEORGE M. ROMMEL, CHIEF OF THE ANIMAL HUSBANDRY DIVISION, BUREAU OF ANIMAL INDUSTRY.

Mr. ROMMEL. Mr. Chairman, what sort of procedure do you wish me to follow?

The CHAIRMAN. Make any statement that you may have to make in general, and when we reach the various items we may have some questions to ask you. If you have a statement that you prefer to make, make it in your own way as to the work and results attained and what information you can give the committee that will be of interest and value.

Mr. ROMMEL. The work of the Animal Husbandry Division is confined to research work on live-stock production, and to extension work in cooperation with the States Relations Service covering the lines of live-stock production, especially meat animals.

We also have charge of the work of encouraging the breeding of horses for military purposes, conducted in a very small experimental way. The work also covers research and extension work in poultry husbandry.

That in a broad general way is the scope of the Animal Husbandry Division. I can go into that in just as much detail as you desire, sir, or I can confine my remarks to the items in the estimate; just as you wish.

The CHAIRMAN. Did I understand you to say in cooperation with the States Relations Service?

Mr. ROMMEL. Yes, sir.

The CHAIRMAN. You might state how you cooperate with them.

Mr. ROMMEL. That is in the extension work, in the organization of pig clubs, in the beef cattle demonstration work in the South, in the farm sheep demonstration work, and in the poultry club work. Our work in the organization of pig clubs is gradually becoming work in swine husbandry. We cooperate with the States Relations

Service in this way: We have our men who devote their entire time to the extension work. They are stationed in the Animal Husbandry Division, and work through the States Relations Service, and through them with the agricultural colleges.

Mr. McLAUGHLIN of Michigan. How many men have you in that kind of work?

Mr. ROMMEL. I can't tell you exactly, Mr. McLaughlin. It is probably 50 or 60 all together, including the men in swine husbandry, in poultry, in sheep demonstration, and in beef cattle work in the South. I can give you that exactly after consultation with the records, if you wish it.

Mr. McLAUGHLIN of Michigan. Can you tell us how they do that work?

Mr. ROMMEL. Yes, sir. Those men work through the extension divisions of the agricultural colleges—the men who are stationed in the field—and those are 90 per cent of the men that are employed. They are stationed at the agricultural colleges and are part and parcel of the extension divisions of the agricultural colleges.

Mr. McLAUGHLIN of Michigan. What do they do?

Mr. ROMMEL. They give the information which a specialist can give on the problems of live-stock production in their particular field. For example, the sheep specialist in Michigan will act as the adviser of the country agents in the State and farmers as to problems of sheep production in that State. His field is to cover the entire range of production from the matters of breeding, feeding, parasite control, marketing wool, etc. Many of these extension specialists in sheep husbandry have exerted a powerful influence in the last two years in improving the conditions of disposing of the product. For example, our specialist in Iowa also acts as secretary of the State Association of Sheep Growers, and one of the things that these people have done in the last two years is to bring about a combination method of selling their wool. They have not yet combined on lambs, but they have on wool, and instead of the sheep growers of Iowa being dependent on the local wool buyer, who pays him what he thinks the wool is worth, the wool is pooled and sent to market in carload lots and brings what it is actually worth on the market.

Mr. McLAUGHLIN of Michigan. Is the man that works up this marketing proposition the expert on sheep diseases?

Mr. ROMMEL. No, sir; he is an expert on sheep husbandry. That is one of his problems.

Mr. McLAUGHLIN of Michigan. You spoke about the sheep diseases—parasites.

Mr. ROMMEL. That is one of the things that those men have to be up on, on the management of sheep in order to control parasites. The control of parasites in sheep, stomach worms, and things of that sort is as much a matter of management as it is anything else.

Mr. McLAUGHLIN of Michigan. You spoke of sheep diseases; that is one of the diseases of sheep, isn't it?

Mr. ROMMEL. Yes; but he is not specially an expert in sheep diseases. That is not his specialty; his specialty is sheep as a whole, and he has to be up on these other problems as well, the control of sheep diseases, the methods of marketing, and things of that sort.

Mr. McLAUGHLIN of Michigan. Do you have an expert for each disease?

Mr. ROMMEL. We have no experts on diseases in the Animal Husbandry division.

The CHAIRMAN. Who looks after that end of it?

Mr. ROMMEL. The Zoological Division are studying especially the question of sheep parasites. What we are studying is the matter of management of sheep, the rotation of pastures, and things of that sort, in order to prevent infection.

The CHAIRMAN. Are we to understand that you have a man stationed at each State college?

Mr. ROMMEL. Not at each college, no, sir.

The CHAIRMAN. How many have you?

Mr. ROMMEL. As I recall it, there are 15 specialists in sheep husbandry. I am speaking now from memory. I can check these for the record from our records.

The CHAIRMAN. Does he devote his time to instruction?

Mr. ROMMEL. He is on the extension staff of the college, in the extension division.

The CHAIRMAN. Is he paid out of Government funds?

Mr. ROMMEL. He is paid partly out of Government funds and partly out of State funds. The States, as a rule, pay the traveling expenses of these men. We pay part or all of the salaries. They pay in many cases a small addition to what we pay in the way of salaries. For example, we pay a man \$1,380, but you can't get an experienced man for \$1,380. The State may in such an instance add enough more to get an experienced specialist.

The CHAIRMAN. Does he travel over the State or is he instructing the students?

Mr. ROMMEL. He visits the county agents and the farm bureaus, bringing the information and expert advice directly home to the farm bureaus.

The CHAIRMAN. The county agents are not at State colleges; they are out in the counties.

Mr. ROMMEL. Yes, sir. I wouldn't have a specialist in extension work in a State who spent his whole time at the seat of the agricultural college. The specialist must get out over the State and get into contact with the farmers. That is where he does his valuable work.

The CHAIRMAN. He spends part of his time at the college and part of his time in the field.

Mr. ROMMEL. Quite so. He spends just enough of his time in the college to keep in touch with his office work. We require weekly reports from these men, and they have to show in those reports where they have spent the time during the preceding week. A man that spends more than two days in the week at the college is regarded as spending too much time in one place. I should say these men spent probably an average of two days a week at the college, and the rest of the time is spent out in the State.

Mr. McLAUGHLIN of Michigan. And the work of one of these men covers all the domestic animals?

Mr. ROMMEL. No, sir; these men, as a rule, are specialists in one particular class of stock. One man will be a specialist in sheep husbandry; another will be a specialist in swine husbandry; another one will specialize on beef cattle; another one will specialize in poultry.

Mr. McLAUGHLIN of Michigan. Isn't there a man at each one of the colleges, or there part of the time, and other places part of the time, respecting each kind of animal?

Mr. ROMMEL. You mean have we men of that kind? You mean has the department?

Mr. McLAUGHLIN of Michigan. Has the department?

Mr. ROMMEL. No, sir.

Mr. McLAUGHLIN of Michigan. How many different ones have you?

Mr. ROMMEL. We have in one or two States as many as three. There is no State that I recall right now that has more than three of these specialists from our pay roll.

Mr. McLAUGHLIN of Michigan. This is of your bureau?

Mr. ROMMEL. Yes, sir.

Mr. McLAUGHLIN of Michigan. At a college where you have three of these men, what does the work of each one cover?

Mr. ROMMEL. The State that I particularly have in mind has a beef-cattle man, a sheep specialist, and a swine specialist.

Mr. McLAUGHLIN of Michigan. And how many States have three?

Mr. ROMMEL. Mississippi, Missouri, and Tennessee each have three.

Mr. McLAUGHLIN of Michigan. Do several have two?

Mr. ROMMEL. Oh, yes; several have two.

Mr. McLAUGHLIN of Michigan. And how many have you altogether?

Mr. ROMMEL. I can't answer you that exactly. There are between fifty and sixty, I should say, quoting simply from memory. I can verify that for the record if you wish.

Mr. McLAUGHLIN of Michigan. There would be several States, quite a number of them, in which no men of that kind are employed?

Mr. ROMMEL. Yes, indeed. We have not been able to meet the demand for these men at all. They are asking us for more assistance along this line than we are possibly able to render.

The CHAIRMAN. The table on page 53 indicates that you employ 101, and 17 more would make 118 people.

Mr. ROMMEL. The total number of men employed in the division at the present time, including laborers and clerks, is 174. That is shifting more or less from time to time. Of these 174 men, there are 41 in Washington, 133 in the field. Twenty-two of these men are technical employees in Washington.

The CHAIRMAN. Are they paid out of your funds?

Mr. ROMMEL. Yes, sir; they are paid out of the appropriation for the animal husbandry division.

The CHAIRMAN. Part by your division and part by the States Relations Service?

Mr. ROMMEL. The States Relations Service does not pay anything toward their salaries. Some of these men in the field are paid by the State Smith-Lever fund—the State funds.

The CHAIRMAN. The salaries indicated on page 52—are those the total salaries paid?

Mr. ROMMEL. Approximately.

The CHAIRMAN. Are they paid by the State also?

Mr. ROMMEL. No; the salaries paid by States are not indicated there.

Mr. McLAUGHLIN of Michigan. These are the amounts, then, that are contributed by you?

Mr. ROMMEL. Yes, sir.

Mr. McLAUGHLIN of Michigan. As a portion of the salaries?

Mr. ROMMEL. Yes, sir.

The CHAIRMAN. As a portion or as a whole of the salaries? Do they get any salary outside of what is indicated here?

Mr. ROMMEL. Some of these cooperative extension men get money from State sources.

The CHAIRMAN. Aside from the salaries indicated on page 52?

Mr. ROMMEL. Yes, sir.

The CHAIRMAN. We should know how much.

Mr. ROMMEL. I can furnish that to you.

The CHAIRMAN. We would like to have it now or have it before we make up the bill. What are the salaries paid them?

Mr. ROMMEL. In addition to that?

The CHAIRMAN. Yes.

Mr. ROMMEL. I could only guess at that now, Mr. Chairman. I could furnish that to you by to-morrow morning.

The CHAIRMAN. Do you prefer to wait until to-morrow morning with your testimony, or will you go on now and bring it in to-morrow?

Mr. ROMMEL. I am at your disposal. I am ready to go ahead now if you like, or I can appear again to-morrow morning.

Mr. McLAUGHLIN of Michigan. I suppose none of these men get more than they are entitled to. None of the wages seem to be very big.

The CHAIRMAN. That all depends on what is paid by others.

Mr. McLAUGHLIN of Michigan. Yes; I was going to say, but if he is paid another salary in addition to the one he gets here—and what is that rule about \$2,000?

Mr. HARRISON. He can not receive more than \$2,000 from the Government. That does not apply to State funds.

Mr. McLAUGHLIN of Michigan. But some of that money he gets in the State is Federal money.

Mr. HARRISON. It becomes State money after it goes to the State, but of course we have authority to consider and approve projects and to check expenditures.

Mr. McLAUGHLIN of Michigan. Oh, is that the way you figure it?

Mr. HARRISON. The money available under the Smith-Lever Act is paid over to the State.

The CHAIRMAN. How many do you have?

Mr. HARRISON. I could not answer that question offhand, Mr. Haugen. There are many cooperative arrangements throughout the department. It is my recollection that this matter has been discussed before the committee for several years, and I think it has been made clear that, in many instances, we have cooperative arrangements with the States by which we pay a part of the salaries of some of our employees and the States pay the remainder. And the committee has been fostering the idea of cooperation.

The CHAIRMAN. But the book should indicate the amounts paid.

Mr. HARRISON. Those tables indicate the expenditures by the Department of Agriculture.

The CHAIRMAN. We have been told that they indicate the salaries paid by the department.

Mr. HARRISON. That is what they do indicate.

The CHAIRMAN. There are other additional salaries paid.

Mr. HARRISON. But we do not pay them.

The CHAIRMAN. The salaries are paid and we are supposed to know what the salaries are.

Mr. MCKINLEY. Would the department really know?

Mr. HARRISON. Our records show the total compensation received by our cooperative employees, but the form of these tables, as I explained the other day, is prescribed by the Treasury Department under a law passed by Congress. We are required to indicate the salaries we pay to our employees, not what somebody else pays to them.

The CHAIRMAN. This table here should indicate part salary at least. It ought to give that information.

Mr. HARRISON. There isn't anything like that. All the cooperative salaries are entirely reasonable.

Mr. McLAUGHLIN of Michigan. Whether the law is a good one or not, that forbids a man to receive more than \$2,000 in the aggregate of combined salaries, it would seem to me that when he receives money out of that Smith-Lever fund after it reaches the State, that is pretty nearly Federal money, and the receipt of that contrary to that rule providing for the \$2,000 is an evasion of the law, in my judgment.

Mr. MCKINLEY. Mr. McLaughlin, isn't it a fact that some of these county agents get as much as \$5,000 a year?

Mr. HARRISON. One or two of them get \$6,000, but the local authorities put up practically all the money.

Mr. MCKINLEY. And part of that money comes from the Lever fund.

Mr. McLAUGHLIN of Michigan. Lots of them don't get any pay from the Federal Treasury at all. I am talking about a man that is on the Federal roll.

Mr. MCKINLEY. But a part of them do get State aid. We are paying a man \$5,000 a year, while the Government is only paying \$1,200 out of it.

Mr. McLAUGHLIN of Michigan. That comes out of the Lever fund.

Mr. HARRISON. We pay a part of the salary of a number of county agents, Mr. McLaughlin, out of the extension funds provided in this bill.

The CHAIRMAN. The situation is this: This is Government money. We pay the money over to the colleges and they pay that money here.

Mr. MCKINLEY. You think the wording should be "part payment"?

The CHAIRMAN. We ought to have the information as to the salaries paid.

Mr. HARRISON. We shall be only too glad to give the committee all the information it desires about them.

The CHAIRMAN. We ought to write into the law just exactly what the salaries are. We will discuss that later, if you will furnish a list of the salaries paid, and other information on the subject.

Mr. ROMMEL. Yes, sir. And I wish to say before we pass this, Mr. Chairman, in fairness to the department, that this matter is handled something in this way: An extension director will say, "Here, I have \$1,200 that I can pay toward an animal husbandry specialist; how much can you add to that in order to enable us to get a good man? Can you add enough for us to get a man that we can hire for \$2,400?" Ordinarily we can.

The CHAIRMAN. They add \$1,200; where does the \$1,200 come from?

Mr. ROMMEL. It comes from State funds.

The CHAIRMAN. Where do the State funds come from?

Mr. ROMMEL. It comes from State funds.

The CHAIRMAN. But where do the State funds come from? They come from the Public Treasury, do they not?

Mr. ROMMEL. They may; they may not. None of these men that I am speaking about now, so far as I know, receive \$2,400. We had one man on the rolls last year that was receiving \$2,750, all of which we paid. Twenty-four hundred dollars is the usual maximum limit, and we are losing these men all the time. We are having resignations constantly from our force, and how are we going to hold them?

Mr. McLAUGHLIN of Michigan. I said that was an evasion of the law. I don't know that it is, but it is interesting to know it, that men carried on this roll, receiving different amounts of money, are also on State rolls, receiving some money; that they have a divided allegiance; and whether that is right or not, or profitable or not, I don't know, but that is the situation.

The CHAIRMAN. How many extension men have you? How many should be added to what we appropriate for for the States Relations Service?

Mr. ROMMEL. I can't tell you exactly. I will have to furnish that information after I have checked with the records. I think it is between 50 and 60.

(A statement regarding salaries of employees engaged cooperatively by the department and by States follows:)

Animal Husbandry Division.

COOPERATIVE EXTENSION EMPLOYEES.

State.	Name.	Salary, Bureau of Animal Industry.	Salary, State.	Increased compen- sation.	Total salary.	Appropriation.
Alabama.....	K. G. Baker.....	\$1,800	\$100	.....	\$2,200	Live stock demonstration.
	J. C. Ford.....	1,680	320	.....	2,000	Pig clubs.
Arkansas.....	L. I. Case.....	1,380	840	.....	2,220	Live stock demonstration.
	J. H. McLeod ¹	1,800	960	.....	2,750	Pig clubs.
Colorado.....	J. T. Tingle.....	1,500	.....	\$240	1,740	Do.
Connecticut.....	A. G. Skinner.....	900	900	.....	1,800	Farm sheep demonstra- tion.
Florida.....	W. H. Black.....	2,000	300	.....	2,300	Live stock demonstration.
Georgia.....	J. E. Downing.....	1,920	380	.....	2,220	Pig clubs.
	C. E. Kellogg.....	1,380	300	.....	1,680	Live stock demonstration.

¹ Resigned effective Dec. 31, 1919.

Animal Husbandry Division—Continued.

COOPERATIVE EXTENSION EMPLOYEES—Continued.

State.	Name.	Salary, Bureau of Animal Industry.	Salary, State.	Increased compen- sation.	Total salary.	Appropriation.
Idaho.....	E. F. Rinehart..	\$2,400	\$240	.....	\$2,640	Farm sheep demonstra- tion.
Illinois.....	C. W. Crawford..	1,800	.....	.....	1,800	Do.
Indiana.....	Claude Harper..	1,800	720	.....	2,520	Do.
	J. B. Wiley.....	1,920	480	.....	2,400	Pig clubs.
Iowa.....	C. P. Earle.....	1,500	.....	\$240	1,740	Poultry clubs.
	Tom C. Stone....	2,000	.....	240	2,240	Farm sheep demonstra- tion.
Kansas.....	C. G. Elling.....	2,200	200	.....	2,400	Do.
	J. L. Frohn.....	1,500	500	.....	2,000	Poultry clubs.
Kentucky.....	E. S. Good.....	1,800	600	.....	2,400	Pig clubs.
	O. G. Hankins....	1,800	300	.....	2,100	Do.
Louisiana.....	J. B. Francioni..	1,700	300	.....	2,000	Do.
	G. P. Williams..	2,000	.....	240	2,240	Farm sheep demonstra- tion.
Maine.....	L. S. Cleaves....	1,000	500	.....	1,500	Do.
Maryland.....	S. S. Buckley....	2,200	.....	240	2,440	Pig clubs.
Massachusetts..	H. E. Haslett....	1,380	420	.....	1,800	Farm sheep demonstra- tion.
Minnesota.....	L. H. Fudge.....	1,800	.....	240	2,040	Pig clubs.
Mississippi.....	G. L. Bigford....	1,500	500	.....	2,000	Farm sheep demonstra- tion.
	E. E. Elliott.....	600	1,200	.....	1,800	Live stock demonstration.
	C. J. Goodall....	1,800	600	.....	2,400	Do.
Missouri.....	G. W. Hackett....	1,740	.....	240	1,980	Poultry clubs.
	W. L. R. Perry....	1,500	.....	240	1,740	Do.
	D. A. Spencer....	1,800	200	.....	2,000	Farm sheep demonstra- tion.
Nebraska.....	M. B. Posson....	2,000	.....	.....	2,000	Pig clubs.
New York.....	M. J. Smith.....	1,500	750	.....	2,250	Farm sheep demonstra- tion.
North Carolina..	R. S. Curtis.....	1,200	1,300	.....	2,500	Pig clubs.
	George Evans....	1,200	600	.....	1,800	Farm sheep demonstra- tion.
	A. G. Oliver.....	1,500	700	.....	2,200	Poultry clubs.
	W. W. Shay.....	1,500	.....	240	1,740	Pig clubs.
	J. W. Bloss.....	1,200	800	.....	2,000	Live stock demonstration.
Oklahoma.....	C. M. Smith.....	1,500	600	.....	2,100	Poultry clubs.
Oregon.....	L. J. Allen.....	1,380	420	.....	1,800	Pig clubs.
South Carolina..	W. J. Sheely....	1,800	.....	240	2,040	Live stock demonstration.
	R. H. Wilkins....	1,620	700	.....	2,320	Poultry clubs.
Tennessee.....	R. P. Hite.....	2,000	.....	240	2,240	Farm sheep demonstra- tion.
	R. M. Murphy....	1,800	600	.....	2,400	Live stock demonstration.
	L. A. Richardson..	1,800	680	.....	2,540	Do.
Texas.....	Max W. Coll.....	1,380	620	.....	2,000	Farm sheep demonstra- tion.
	Edwin Houston ¹	2,400	1,840	.....	4,240	Pig clubs.
West Virginia...	E. L. Shaw.....	2,000	240	.....	2,240	Farm sheep demonstra- tion.

COOPERATIVE RESEARCH EMPLOYEES.

Arkansas.....	A. T. Sempie....	\$1,800	.....	\$240	\$2,040	Beef cattle investigations.
Mississippi.....	Andrew Carter..	720	.....	.....	720	Do.
	J. W. Dill.....	1,200	.....	.....	1,200	Do.
	S. W. Greene....	1,620	.....	.....	1,620	Do.
	S. S. Jordan.....	2,040	.....	240	2,280	Do.
	W. T. Smith.....	840	.....	.....	840	Do.
Florida.....	E. W. Thomas....	1,500	.....	240	1,740	Do.
Montana.....	R. E. Gungwer....	1,380	.....	240	1,620	Western investigations.
North Carolina..	F. T. Peden.....	1,380	.....	240	1,620	Beef cattle investigations.
West Virginia...	E. H. Tuckwiller	1,200	.....	240	1,440	Do.
Wyoming.....	W. H. Allen.....	600	.....	.....	600	American utility horses.
	James Hutton....	1,380	.....	240	1,620	Do.

¹ Resigned, effective Dec. 31, 1919.

Mr. ROMMEL. I will take up the items, if you wish, that call for increases in the estimates.

The first one of those items appears on page 51, under the note "A," and item of \$75,000 for encouraging live-stock production in the Great Plains region. That item was put in as an outgrowth of our experience in the drought of the past four years in the West, and the purpose of it is right along the lines of this extension matter that we have been discussing, to place live-stock experts on the extension staffs of the agricultural colleges of the plains States, in order to bring about a development of the farming in that region which will stabilize it. We have a number of experiment stations in that country at which a certain amount of work is being done of an experimental character relating to live stock.

The CHAIRMAN. Will you give the number of those?

Mr. ROMMEL. That is not my province. Dr. Taylor is here and can give you that exactly.

Mr. McLAUGHLIN of Michigan. What is that?

Mr. ROMMEL. Dry land and western irrigation agricultural stations—the number of stations. We have some live-stock experimental work at Huntley, Mont., at Belle Fourche, S. Dak., at Scotts Bluff, Nebr., and at Ardmore, S. Dak. Those are the only stations at which we are doing any experimental work. The number of dry-land stations—I will have to turn that over to Dr. Taylor.

Now, the farming situation in the Great Plains region, from the best study that we have been able to make of it—and I personally have been in pretty close touch with it for the last three years on account of the relief work necessitated by the western drought—the farming in the dry-land country will never be stable until it is based upon live stock. The man who goes out there and attempts to farm in that section without having live stock as his basis is going to be up against starvation sooner or later. That was true in Texas; it is true in Montana, and is true of any other strictly dry-farming region.

Mr. McLAUGHLIN of Michigan. I would think that two kinds of farming would go together.

Mr. ROMMEL. You would think so, but they have not yet done it. That is exactly what we hope to drive home to those people.

Mr. McLAUGHLIN of Michigan. It is a difficult proposition to maintain live stock unless the crops are sufficient to feed them.

Mr. ROMMEL. The crops can be grown for live-stock production. The average dry farmer has specialized on grain production, and when he faces a period of drought such as the Montana farmers have just come through, such as the Texas farmers went through in 1916, 1917, and 1918, if that man hasn't balanced his farming in such a way that live stock is the basis of it, he will have to move out or starve to death.

Mr. McLAUGHLIN of Michigan. He must make his crops to suit the live stock, then, partly?

Mr. ROMMEL. Quite so; partly. In other words, he has to have some form of income and some form of food other than that from grain production.

The CHAIRMAN. What do you suggest to the farmers there?

Mr. ROMMEL. My suggestion is that they start with a little bunch of cows that they can milk, so that they can have milk and butter, and cheese, possibly; that they have a little flock of chickens; that they try to get off of the farm enough to keep the family alive.

Now, in order to do that, they have to have feed stored up, Mr. Chairman, to cover the periods of scarcity. Fortunately, some of the Texas people are doing that right now. There are men in west Texas that put up a two years' supply of feed this year. The result is they can put by in the years of plenty a sufficient supply of feed to carry their live stock over the years of scarcity, and they won't have to sacrifice it. The farmers in Montana, on the other hand, many of them settled on their farms right in the face of this three years' drought, and they have never been able to put up any feed or grow enough to support their live stock. They were dependent entirely on their wheat, and when the drought came, and they didn't raise any wheat, they had nothing with which to keep their live stock, and they had to sacrifice it. Many of them had to move out.

The CHAIRMAN. Have you any suggestions as to increased production?

Mr. ROMMEL. Increased production?

The CHAIRMAN. Is it simply a storage proposition?

Mr. ROMMEL. It is very largely a storage proposition. It is also the proper relationship of the crops that are planted.

The CHAIRMAN. What do you suggest in the way of crops in those sections?

Mr. ROMMEL. In Montana one of the best crops that they grow there is good old-fashioned corn. That is one of the best crops for livestock.

The CHAIRMAN. Can they grow corn up there?

Mr. ROMMEL. They had it last year. It was not only cold, but it was dry, but many farmers had corn last year sufficient to produce a certain amount of forage, in spite of the drought. As you go further down you get into sections where they can raise the grain sorghums. Millet helps—anything that will grow will help. Sunflowers are one of the promising crops in Montana.

The CHAIRMAN. It takes moisture.

Mr. ROMMEL. They are growing them out there on the dry farms, and that is one of the most promising crops that they have. If there is sufficient moisture in the spring to bring them up, they will make some sort of forage. The great problem in that whole dry farming country is for a man to raise enough to live on.

Mr. McLAUGHLIN of Michigan. How many men have you had in Montana doing that kind of work?

Mr. ROMMEL. We haven't had any, I am sorry to say. We have no men in Montana. We had some men out there on the emergency work, moving live stock last summer, but they were only temporary. We have no men whatever on the live-stock extension work in the Great Plains.

Mr. McLAUGHLIN of Michigan. Haven't the States had some men there?

Mr. ROMMEL. The States have done a little work along that line—not very much.

The CHAIRMAN. How much land would be required for a family?

Mr. ROMMEL. That question is one that the classification board of the Geological Survey is trying to answer now in regard to the 640-acre grazing homesteads. I don't believe that anyone can answer that question. It may be, in some sections, 320 acres.

The CHAIRMAN. Generally speaking, in these sections where you have your stations?

Mr. ROMMEL. The average farms in those sections run around 320 acres.

The CHAIRMAN. How many head of cattle can be kept on the 320 acres?

Mr. ROMMEL. They don't keep any cattle on most dry farms in Montana. That is the trouble. I don't know that I can answer that question. I don't know that anybody could answer it.

The CHAIRMAN. Have you been experimenting with stock out there?

Mr. ROMMEL. We have in one place, at Ardmore, S. Dak. We are running experiments there to determine the carrying capacity of the range. We are running cattle in lots of various sizes, on pastures of various sizes, running one to 10 acres, one to 5 acres, one to 20 acres, and so forth.

The CHAIRMAN. You are getting away from the dry region when you speak about one head to the acre, aren't you?

Mr. ROMMEL. One head to the acre? I said one head to 10 acres, or one to 5, or one to 20. The carrying capacity of the range varies from one to 10 acres to one to 50 acres.

The CHAIRMAN. You mean it would require from 10 to 20 acres, then, for one head?

Mr. ROMMEL. That would be a pretty safe estimate; yes, sir—a pretty safe estimate to make.

The CHAIRMAN. That would be about 16 head to half a section of land.

Mr. ROMMEL. If those were cows they would be in pretty fair shape.

The CHAIRMAN. You contend that a family could live on that number of head, 16 head of cattle?

Mr. ROMMEL. They could keep from starving to death; yes, sir.

The CHAIRMAN. Would it not be better to educate them to get out of that country, rather than to stay there and starve to death?

Mr. McKINLEY. Isn't that the country that Mr. Lane is going to put our soldiers into, that type of country?

Mr. ROMMEL. No; I wouldn't care to say that. Mr. Lane should answer that question.

Mr. McLAUGHLIN, of Michigan. I don't think he is.

Mr. ROMMEL. I wish, Mr. Chairman, you would not get the impression that I have any motive in this matter except to try to keep those people from starving where they are. I am not condoning anyone; I am not discussing the motives that took those people into that country; I am discussing the fact of their being there.

The CHAIRMAN. I have been through that country, I confess that I have great sympathy for them, and if there is any way of helping them I would be very glad to do it. A good many of our people have gone into that country, and unfortunately have not been able to get out; I have said a number of times that the Government is responsible in a way for them being out there, which is very unfortunate. Now, if there is something we can do for them, we want to do it, but if we are encouraging them to stay without assisting them, or simply assisting to keep them alive, it does not seem to me to be a very good proposition.

Mr. ROMMEL. I want to say right here, Mr. Chairman, that I am not encouraging them to stay there.

The CHAIRMAN. You may discover something that may be of some value to them some day.

Mr. ROMMEL. I want to tell you a story. I have been right in the homes of these people and I know what they are up against. I have seen them in Texas and I have seen them in Montana, and the things they told me last summer in Montana were enough to stir any man's soul. One fellow came to me and said this: "Mr. Rommel, when I came into this country I had \$6,000 in hard money. It is all gone. Now I am going to stick as long as I have my clothes." I looked that fellow in the eye, and I said, "By Jove, you are worth helping, if you will fight this thing out."

Mr. McLAUGHLIN, of Michigan. He was, if there was any prospect of success.

The CHAIRMAN. That is where the argument comes in, whether there is any prospect of success.

Mr. SMITH, of Idaho. Mr. Chairman, may I ask a question? I happen to represent a part of the country to which Mr. Rommel refers. Ten years ago the eastern part of Idaho was considered a desert, but under the systematic plan of farming they have been able up in that eastern part toward Yellowstone Park to raise anywhere from 10 to 40 bushels of wheat per acre, and it is simply a good demonstration of what is being accomplished by the scientific methods that have been worked out by the Department of Agriculture with reference to the western country which, as I say, in years gone by was considered a desert, but many of the people now are very prosperous. It is true that up in Montana they have had a great drought and the people are hard up, but it is no reason why they should abandon the country.

The CHAIRMAN. No; we should not abandon the whole country; but I believe that that country was intended for grazing rather than for farming. If there is some way of helping them I will be very glad to help them. I have been through that country. Nearly every year I go out there. As I said, I have a good deal of sympathy for the people out there.

Mr. JONES. Is that man still living?

Mr. ROMMEL. Yes; he is living, because the men in Montana in the banking business and in the mercantile business there are standing behind those people. They believe that the thing to do is to stand behind them and to see them through, and that if they can take a man that has that kind of spirit and carry him through they think he will ultimately be in a position to make a crop. That is what they are betting on, and the weather records indicate that they can expect rainfall next year. There is no case on record until this year where there were three dry years in succession in that north Montana country.

The CHAIRMAN. But in your opinion what can be done for them?

Mr. ROMMEL. My opinion is that we should go out there, study their problems, study their agriculture, and see if you can put their farming on a live-stock basis, because they are not going to make it go when they are simply trying to raise wheat. We know that.

The CHAIRMAN. What hopes have you of doing something for them in the way of increasing production?

Mr. ROMMEL. I have just the hope that we had for western Kansas, western Nebraska, and the western Dakotas. When I was a boy at home in Iowa, every year at Christmas time the good people in the churches got up a Christmas box of old clothes that we didn't need. They particularly asked for clothes for the children, shoes and overcoats and caps and things of that kind. And where did that stuff go? You remember just as well as I do, Mr. Chairman. It went out to Kansas, and if you want to insult a Kansas man to-day just remind him of something of that kind. Kansas farmers are not in distress to-day because they have learned how to handle the farming on those lands and get by and make a living. Now we will have to work the same thing out in Montana. The Montana people think they are going through it now, and you know what happened to the west Texas people. Look what Texas has to-day. They have never had such grass conditions in the history of the State as they have had this year; yet a year ago you could travel for miles in Texas and see no grass anywhere, any more than there is on this table.

The CHAIRMAN. They have had droughts there practically three years in succession.

Mr. ROMMEL. Yes; but it started to raining and snowing in Texas just about a year ago and is still at it.

The CHAIRMAN. You have hopes of improving conditions, then?

Mr. ROMMEL. Yes, sir; absolutely. We believe that it can be done with live stock as the basis, and we believe people that have the courage and nerve of those people are worthy of help.

The CHAIRMAN. There is no question but that they are worthy, but what can we do for them?

Mr. McLAUGHLIN of Michigan. We often find, however, help being asked from the Federal Government when they ought to be helped by their own people. Now, this occurs to me, that if you send a man out there he has to be there long enough to learn conditions and study the climate and soil and be there some considerable time. Aren't there people in the States there that could be engaged by the State, and who know those things now, who could go in there and do that work?

Mr. ROMMEL. I would not send a man out there that did not know the conditions. I would not engage any man but a man who did know the conditions in the State.

Mr. McKINLEY. Your note here says this is to work in cooperation with the State.

Mr. ROMMEL. Exactly. Most of the State people out there have unquestionably helped. They helped in many ways that have not been particularly apparent. If the attitude of the bankers and the business men had been different from what it has been there would have been one string of failures after another all along the line of the Great Northern Railway in Montana.

Mr. HARRISON. Dr. Rommel, this is a regional problem and not merely a State problem.

Dr. ROMMEL. Exactly. It extends from the Canada border to the Mexican line, over the entire Great Plains region, the entire dry-farming area.

The next item, Mr. Chairman, in which there is an increase is a request for an increase of \$37,000 for studying problems of beef

production. At the present time we are studying problems of beef production at Beltsville, Md., Lewisburg, W. Va., Canton, Miss., and McNeill, Miss.; at Springdale, N. C.; at Manhattan, Kans.; at Jonesboro, Ark.; and Indian Town, Fla.

If this increase is granted it is proposed to consolidate the work that we have been doing at Beltsville on beef production and the work we are doing at Canton, Miss., at the branch experiment station at McNeill, Miss. That station has been conducted for some 17 years by the State of Mississippi for the study of agricultural problems in south Mississippi. At the request of the Mississippi experiment station we took that over last spring. We placed a man in charge who is responsible to us and who is responsible to the director of the Mississippi experiment station. We share 50-50 in the cost of managing that station. That is to say, we pay the salaries and wages and they pay the other expenses. They contribute nothing toward the salaries of the men in charge.

We plan to discontinue the work in beef production that we formerly did at Beltsville and the work formerly done at Canton, Miss., and carry on that work at McNeill, Miss. McNeill is on the main line of the Southern about 58 miles from New Orleans. It is in the upper edge of the cut over pine country, and this also will be a regional station. The work that will be done there will cover a very large portion of the coastal plain, extending from east Texas well over into Georgia. The data that is obtained at McNeill will be applicable to this territory, and I need hardly say here that one of the great problems in the development of the coastal plain is the question of the live stock problems pertaining to this development.

The station at McNeill, as I have remarked, was established some 17 years ago by the State of Mississippi. It was developed for the purpose of studying crop producing problems in that region and was begun before any serious attention was being paid to live stock problems anywhere in the South, and before any attention whatever was directed to the live stock possibilities of the coastal plain. The investigations of the animal husbandry division on beef production problems in the South began in 1904, and the proposed work at McNeill is an outgrowth of work previously done. Not long ago the State of Mississippi established an agricultural high school at Poplarville, about 12 miles from McNeill, and arranged to transfer the work the State had formerly done at McNeill to Poplarville. The authorities of the Mississippi Experiment Station suggested that they would like the department to join with them in cooperative live-stock investigations at the McNeill station. They proposed to turn in the station intact with all buildings, cattle, and sheep, if the department would put a competent man in charge, and take care of other salaries and wages. They also offered access to all records collected at the station during its existence. The property turned into the cooperation by the State was 1,140 acres of land, with cattle, sheep, an office building, a superintendent's cottage, laborers' cottages, barns, silo, and farm machinery. Much of the property is already under fence. The department's agreement with the State specifically provides that it "does not in any way obligate the Department of Agriculture to the purchase or rental of land." The value of the State property turned into the project is conservatively estimated at

\$18,000. This offer was so generous and attractive, and enabled the department so to increase the efficiency of its experimental work, that it was accepted on February 21, 1919. The experimental beef production work which had formerly been done in Mississippi was conducted on a privately owned farm, which does not always give the opportunity for complete control of the work which is desirable.

The principal work of the station will be devoted to the study of problems underlying the development of the live stock farming and grazing possibilities of the coastal plain, using beef cattle principally, with sheep as an adjunct. Close cooperation will be maintained with the Bureau of Plant Industry in its forage investigations, and it is hoped that the bureau will find it possible to conduct experiments with pasture crops at the station.

During the present winter steers are being fed at McNeill to study the feeding value of velvet beans and the refuse of the sweet potato canneries. These steers are furnished by the Mississippi station for this work. Future studies will be planned to investigate the carrying capacity of native pastures, especially carpet grass, the effective establishment of carpet grass and other pastures on cut over lands, the feeding value of forage plants such as Japanese cane, Napier grass, Merker grass, etc. The department hopes that the station at McNeill may become known as a source of authoritative information on the live stock forage and pasture problems of a considerable portion of the coastal plain.

The CHAIRMAN. Is that a State station?

Mr. ROMMEL. It is a cooperative station.

The CHAIRMAN. What was it before you took it over?

Mr. ROMMEL. The title of the land is in the State. It was a branch station of the Mississippi Experiment Station.

The CHAIRMAN. Is that the experiment station of Mississippi?

Mr. ROMMEL. It is one of their branches; not the main station. We pay salaries and wages.

The CHAIRMAN. Before you took it over, what was it?

Mr. ROMMEL. They paid all the expenses then, so far as I know.

The CHAIRMAN. Out of funds contributed by the Federal Government?

Mr. ROMMEL. I don't know. I doubt that very much. I have always understood those Mississippi branch stations were maintained by State appropriations.

Mr. CANDLER. I think they are all maintained by State appropriations.

The CHAIRMAN. You have a State station there.

Mr. CANDLER. The station at McNeill was established by the State and by an appropriation made by the State at the time, and I presume it is kept up that way.

The CHAIRMAN. Operated independently of Federal funds?

Mr. CANDLER. It is operated, so far as I know, independent of Federal funds.

Mr. ROMMEL. That is my understanding, that it is operated entirely on State funds. My understanding is that the station at Starkville was the one that used Federal funds.

The CHAIRMAN. The funds contributed by Mississippi now, are they out of the funds contributed by the Federal Government?

Mr. ROMMEL. No, sir; they are out of State funds entirely.

Mr. CANDLER. The main station was at Starkville, Miss., at the Agricultural and Mechanical College. That is where the main agricultural station is located, and this is a branch station established by the State, and, of course, they get the information, I presume, through national channels, but they are supported by State appropriation.

The CHAIRMAN. Is this station a branch of that?

Mr. CANDLER. This first station I speak of, the main station, is located at the college and has been all the time.

The CHAIRMAN. It is being maintained there now?

Mr. CANDLER. Yes.

The CHAIRMAN. This is independent of that?

Mr. CANDLER. This is an independent station established by the State in the southern part of the State for the investigation of the peculiar conditions existing there.

The CHAIRMAN. This station, then, is similar to the one in Louisiana, a live stock station?

Mr. ROMMEL. Yes; somewhat.

The CHAIRMAN. Does that come under your jurisdiction?

Mr. ROMMEL. I am on the committee. A committee is in charge of that. Mr. Rawl, Dr. Taylor, Dean Dodson, and myself are on that committee.

The CHAIRMAN. Are all these stations in cooperation with the States?

Mr. ROMMEL. Yes, sir.

The CHAIRMAN. Do the States contribute funds toward their maintenance and operation?

Mr. ROMMEL. All of them.

The CHAIRMAN. To which do you refer?

Mr. ROMMEL. All this work is in cooperation with the States, except the one at Indian Town, Fla. That is independent of the State. The State is not contributing anything there.

The CHAIRMAN. Then it is similar to the work conducted by the stations at the colleges, is it not?

Mr. ROMMEL. It depends upon what you mean by "similar."

The CHAIRMAN. It is experimental work?

Mr. ROMMEL. Yes; it is experimental work. This is experimental work we are discussing now.

The CHAIRMAN. That is a function of the State station. What I was interested in knowing was if the work is being duplicated and if we are establishing two stations in each State.

Mr. ROMMEL. No; this work we are doing is not duplicating any work done by any State station.

The CHAIRMAN. By what authority were these State stations established?

Mr. ROMMEL. By the authority of an appropriation of Congress.

The CHAIRMAN. Was it a general appropriation?

Mr. ROMMEL. The appropriation for general expenses of the Bureau of Animal Industry, animal husbandry.

The CHAIRMAN. There was no specific appropriation made for this particular project?

Mr. ROMMEL. May I read you the language of the appropriation: "For all necessary expenses for investigations and experiments in

animal husbandry; for experiments in animal feeding and breeding, including cooperation with the State agricultural experiment stations," etc.

The CHAIRMAN. It is broad language. I know what the language is.

Mr. ROMMEL. That is the authority under which these stations were established.

The CHAIRMAN. According to that language, we have no check. You might purchase a whole county and put it all into one station, or go anywhere you might want to in the United States, or outside of the United States.

Mr. ROMMEL. That might be done, but it is not likely.

The CHAIRMAN. It has been customary heretofore, whenever you proposed to establish a new station, to bring the matter before Congress and get authority by Congress. I think most of these stations have been authorized by Congress.

Mr. ROMMEL. There has never been any authorization, Mr. Chairman, except that contained in that appropriation bill.

The CHAIRMAN. There was in Nebraska and a number of other stations.

Mr. McLAUGHLIN of Michigan. And the one in Louisiana.

The CHAIRMAN. One in Louisiana was authorized specifically.

Mr. HUTCHINSON. Doctor, I would like to ask you a question there. Is it necessary to have 4,000 ewes to experiment with? Is the Government going into the sheep-raising business?

Mr. ROMMEL. May I defer the answer to that question until we get through with this question of beef production? I will go into that in just a moment.

Mr. McLAUGHLIN of Michigan. I notice you are going to inaugurate a study of beef production in northern cut-over lands in Michigan, Wisconsin, and Minnesota. Whereabouts is that in Michigan?

Mr. ROMMEL. In the upper peninsula.

Mr. McLAUGHLIN of Michigan. What counties?

Mr. ROMMEL. The section that I have heard most about is the section around—I believe they call it Iron County, between Marquette and Menominee. That section came into the limelight last summer when we were moving cattle and sheep out of Montana. When the suggestion was first made that the department take hold of the relief work, the question of moving cattle into the northern Michigan and Wisconsin country was brought up, and somewhere around 200,000 to 300,000 head of cattle and sheep were taken in there. Some cattle had been going into the northern peninsula country for some little time. Arizona cattle, for example, had been going right along, but last summer northwestern stock went in on a wholesale scale.

Mr. McLAUGHLIN of Michigan. I know there were a great many sheep taken into Michigan; that there have been in the last two or three years.

The CHAIRMAN. A good many cattle went in, too.

Mr. McLAUGHLIN of Michigan. I did not know that they were put into the upper peninsula. Is this work to be in cooperation with the State college?

Mr. ROMMEL. The State experiment station; yes, sir.

Mr. McLAUGHLIN of Michigan. The State experiment station at Lansing?

Mr. ROMMEL. Yes, sir.

Mr. McLAUGHLIN of Michigan. Did they suggest it? Did the people at the college suggest it?

Mr. ROMMEL. Yes, sir; those people all through that section have asked for experimental work. The colleges of Michigan, Wisconsin, and Minnesota are all anxious to have investigational work, studying the questions of production in that territory.

Mr. McLAUGHLIN of Michigan. For the purpose of cooperation with you in Michigan next year, how much Michigan money will be available?

Mr. ROMMEL. The chances are there will not be very much Michigan money. The State of Michigan will probably provide the facilities, and they will probably expect the Government to furnish most of the funds, because ordinarily the States are not able to meet the department dollar for dollar. In a few cases they can, but that doesn't alter the fact that it is a cooperation with the State experiment station.

Mr. McLAUGHLIN of Michigan. That is one question that naturally arises—how much money is Michigan putting in? That would show Michigan's interest in it.

Mr. ROMMEL. I can answer that better if we were able to make a definite proposition to Michigan.

Mr. McLAUGHLIN of Michigan. Of course, I suppose Michigan is like all the rest of the States, willing to have the Government come in and spend all the money it pleases; but when a State itself is asked to put up money, it sometimes balks, and I would like to know whether Michigan has asked for this in such a way as to indicate its willingness to put up money.

Mr. ROMMEL. If you mean the Michigan experiment station, I will say we have no specific written request by the Michigan experiment station.

Mr. McLAUGHLIN of Michigan. Where does it come from?

Mr. ROMMEL. From the people in the upper peninsula.

The CHAIRMAN. Is it not a fact that you are encroaching upon the functions of the State and duplicating work done by these States?

Mr. ROMMEL. I hope not. I was not aware that there was any experimental beef production work being conducted in the Upper Peninsula of Michigan.

Mr. JONES. These people from the upper peninsula, did they make any effort to have the State take any active part in the work?

Mr. ROMMEL. I have not said and I am not aware that there was any experimental work in beef production. There is a station at Chatham, Mich., where they are doing some work with sheep and forage crops.

Mr. JONES. I understood you to say it was the people of the upper peninsula that were urging the Federal Government to take an active part in this work.

Mr. ROMMEL. Yes.

Mr. JONES. Do you know whether these same people made any effort to secure the interest of the State in this line of work?

Mr. ROMMEL. They have done something along that line, and they have this branch station at Chatham.

Mr. McLAUGHLIN of Michigan. Is that a branch of the station at Lansing?

Mr. ROMMEL. Yes.

Mr. McLAUGHLIN of Michigan. Under the same direction, is it?

Mr. ROMMEL. Yes. They have a local man in charge—a man, by the way, that they hired away from us.

Mr. McLAUGHLIN of Michigan. You speak of cooperation with the station in Michigan, but you furnish the money and the station furnishes the facilities. What do those facilities consist of?

Mr. ROMMEL. Land, buildings, animals, improvements.

Mr. McLAUGHLIN of Michigan. Have you seen this place yourself?

Mr. ROMMEL. Personally, I have not, I am sorry to say. I have not been through there. Several of our men went through there last summer, but I put in all my time in Montana.

Mr. McLAUGHLIN of Michigan. Are the buildings you speak of owned by the State?

Mr. ROMMEL. The buildings would be owned by the State; yes. The plant ought to be owned by the State.

Mr. McLAUGHLIN of Michigan. There are different kinds of land in the upper peninsula, some very fine land and some light cut-over lands. The fact is that the average yield per acre of crops in the Upper Peninsula of Michigan is higher than it is in the lower peninsula. They have got fine farming country up there, over a very large part of the upper peninsula. I did not know that they were asking Federal aid to carry on some experiments.

The CHAIRMAN. Is it necessary for the Federal Government to cover all this territory?

Mr. ROMMEL. The States are simply in this position, that they have got more demands for experimental work and extension work than they are able to meet with the funds at their command.

The CHAIRMAN. You have that direct from the stations?

Mr. ROMMEL. In many cases that is true.

The CHAIRMAN. You stated that you had no request from the college for the experiment station in Michigan?

Mr. ROMMEL. We have had no official request from the Michigan Experiment Station; no, sir; but we do know this, that the branch experiment station at Chatham, Mich., has not funds sufficient to study all the livestock problems in the upper peninsula.

Mr. HARRISON. Mr. Rommel, I think you ought to make it clear again that you are going to study regional problems, which are applicable not only to the Peninsula of Michigan but to other States as well.

Mr. ROMMEL. It applies also to northern Minnesota, and northern Wisconsin as well.

Mr. HARRISON. It has always been our policy not to study mere local problems within States.

The CHAIRMAN. Congress has made provision for permanent annual appropriations to the States, and no duplication or new stations should be established without the authorization of Congress.

Mr. ROMMEL. We appreciate that fact.

The CHAIRMAN. You appreciate it, but here is a case parallel with Mount Weather, with \$200,000 invested without the knowledge of

Congress or the committee. Here we find a new station without specific authority or knowledge of this committee or of Congress. I think Congress should authorize these stations specifically if they are made at all.

Mr. ROMMEL. I beg pardon, Mr. Chairman, but I feel that I ought to take exception to that remark, if I may. I have been coming before this committee for a good many years, and this is the first time that there has been any suggestion that I have been unfair in my testimony.

The CHAIRMAN. I spoke of the information given to the committee and the authorizations that have been made by Congress. The department should not undertake to establish stations without the specific authorization of Congress. Of course, if you take advantage of the broad language, you did have the authority. It has been customary to come before this Congress and tell the committee exactly what is desired and what it is proposed to do.

Mr. ROMMEL. I can only say that the wording of the item in the appropriation act gives full authority for the action we have taken.

The CHAIRMAN. Where are your estimates for these stations? Did you make any estimates last year? Did you advise the committee that you proposed to establish these stations?

Mr. ROMMEL. The question of the establishment of this station at McNeil, Miss., did not come up until after the 1st of January last. The matter went to the Secretary's office; the Secretary's office passed upon it with every supposition that the matter was being handled fairly. There was no attempt to cover up anything. As you probably know, Mr. Chairman, the regulations of the department and the laws of Congress are specific and definite, prohibiting subordinates in the department from approaching Members of Congress.

The CHAIRMAN. Congress was not advised.

Mr. ROMMEL. I am speaking individually. You have suggested here that I have been unfair to the committee, and I feel that in fairness to myself and to the department I should take exception to the statement.

The CHAIRMAN. It is the duty of the department to advise the committee fully.

Mr. McLAUGHLIN of Michigan. May I ask another question or two there? This general language under which you are operating, part of it is: "Including repairs and additions to and the erection of buildings absolutely necessary to carry on the experiments."

Do you propose to spend money to erect buildings at that station in the Upper Peninsula of Michigan?

Mr. ROMMEL. No, sir; the only thing that—

Mr. McLAUGHLIN of Michigan (interposing). Just another question: Do you think that you would have authority to use money for the erection of a building in that upper peninsula—a station?

Mr. ROMMEL. I do not. The Government has no authority to erect buildings on property not owned by the Government. We are erecting no buildings at McNeil, Miss. We don't own that land. That land is the property of the State, and any expenditures that we make will be in the nature of salaries and for maintenance. But buildings, permanent improvements, and things of that kind, are absolutely out of the question so far as the department funds are concerned on any institutions owned by the States.

Mr. CANDLER. You get the advantage there of the State's having already established the station, owning the land and having the buildings already erected, and you have the use of those buildings in making these investigations?

Mr. ROMMEL. Yes, sir. This clause that you have just quoted, Mr. McLaughlin, applies to stations in which the title vests in the United States; and I may say that we have endeavored not to abuse that privilege. We can give you an itemized statement at any time on request of every building that has been put up, the location, the cost, and everything—what it is used for, and so forth, if you desire to have it.

Mr. McLAUGHLIN of Michigan. Is it your purpose to buy stock with which to experiment at that station in the Upper Peninsula of Michigan?

Mr. ROMMEL. We try to get out of that too, for a very good reason. I will be frank with you, if we buy stock by and by we may sell it. Then we have to take the proceeds and turn them into the Treasury. We have to be constantly using department funds over and over. If the State owns the stock, on the other hand, they have a fund that they can use as a convertible fund if they want to.

Mr. McLAUGHLIN of Michigan. If the Government acquires it—if the State owns it, do you propose to buy stock with which to carry on experiments in the Upper Peninsula of Michigan?

Mr. ROMMEL. We do not.

Mr. JONES. Can you tell me why wealthy States like Wisconsin and Michigan and some of these Middle Atlantic and Eastern States are not interested enough in this proposition to make appropriations themselves for the development of their own State; and why the necessity arises that the Federal Government should go and do it?

Mr. ROMMEL. The probable answer to that question is that the areas in question are sparsely settled.

Mr. JONES. They are within the borders of the States?

Mr. ROMMEL. Yes; they are within the borders of the States; I grant you that. They are sparsely settled and there are not very many people, and for that reason there isn't a very strong popular demand in the State. It is a problem for future development of the territory.

Mr. JONES. Don't the same argument apply why the individuals from the thickly populated portions of those States should not have the same interest in the development of the whole State that the thickly populated parts of the United States should have in the thinly populated portions of the United States?

Mr. ROMMEL. That probably is about as broad as it is long. Theoretically I should say yes, you are quite right; practically, the fact remains that the demands for study looking toward the development of these large regional areas are largely the province of the department.

Mr. JONES. The history of these appropriations is that they are progressive. I presume that is a kind word to use, at least; they start with a nominal appropriation, and this one, which was \$42,000 in 1911, has gone up to over half a million dollars in 10 years. There must come a time when there is a stop to that, must there not?

Mr. ROMMEL. Yes, sir.

Mr. JONES. We can not go on that way indefinitely. When that time comes, the duty will devolve upon the State to continue it, will it not?

Mr. ROMMEL. Some suggestions have been made that where problems of this character cover more than the confines of one State, that the matter be a cooperative proposition between the Federal Government and the State; cooperative because the whole people are concerned, and also because that will in itself carry out the thought that you have in mind; it will operate as a check.

Mr. JONES. After all, it is a development of the State in its natural or created industry.

Mr. ROMMEL. Wherever it applies particularly to a State as a unit and does not go beyond the boundaries of that State, I do not believe that the Federal Government has any business to go in. If the problem is not regional, and does not apply to more than just one State, then it is purely a State problem.

Mr. JONES. There is certainly a benefit to the State in the development of these lands for cattle grazing or any other purpose.

Mr. ROMMEL. Yes, sir.

Mr. JONES. It is utilizing their waste lands, giving employment to men, creating better economic conditions in the State.

Mr. McLAUGHLIN of Michigan: Do you know of any problems in that portion of the Upper Peninsula of Michigan that are not present in other portions of Michigan?

Mr. ROMMEL. They have somewhat different problems there. Any problem in a section that is a cut-over section means different phases from those in open farming section.

Mr. McLAUGHLIN of Michigan. Michigan is all cut over. Michigan was largely a timber State from the Indiana line to Lake Superior. It was all cut over at one time, and while in the upper parts of Michigan there was a lot of pine land, much of which is pretty light soil, still there are full counties and great areas of the State that were hardwood timber, and the soil, almost without exception, is heavy soil and good soil. Large parts of it are not occupied, not cultivated, but it is cut-over land, and good land, and the problems of that part of the State, and that part of the State which is now more thickly settled are practically the same, and as the growth and the population of the State increases toward the north, it seems to me the problems are common all over that section of the country. I do not know what problems you could study that can not be studied anywhere in all parts of the State. I would be glad if you would tell me something that can not.

Mr. ROMMEL. The problem of winter maintenance is somewhat different. They have an entirely different method of seeding up there and getting their timothy and their clover pastures and meadows in. Their big problem up there, as I understand it, is to determine how they can utilize those lands without going to the necessity of clearing the stumps off at once.

Mr. McLAUGHLIN of Michigan. They have that problem all over the State. The man with a large part of his farm does not take out the stumps at once. He seeds a large field, and then later the stumps come out. And they have the advantage in the Upper Peninsula that the snow comes in great quantities there without

the ground freezing. Just as soon as the snow goes away in the spring they can plow and put in their crops; whereas in the southern part of Michigan, a large part of the Southern Peninsula, the ground freezes hard first and then the snow comes. When the snow leaves in the spring they have to wait for weeks until the frost gets out of the ground. The Upper Peninsula has the advantage in that respect. I don't know what problems you are going to study there that are not common to a large part of Michigan.

Mr. ROMMEL. Of course, I can answer your question in regard to that specifically and more intelligently if I had made a closer personal inspection of that land. The presence of a long winter season, with snow on the ground through all the winter is a problem of considerable importance to answer. There isn't any question, so far as I can find out, but that they can graze animals satisfactorily there during the growing season, the five months that they have pasture available, when crops are growing; but for the other six or seven months they have a problem of winter maintenance that I think is extremely important. In other words, what shall be the method of handling live stock in that country? Shall they take live stock in there from the West or from the Southwest solely for grazing through the summer time, or can you develop a permanent live-stock industry in that country by growing during the growing season feed enough to carry the animals through the wintertime.

Mr. McLAUGHLIN of Michigan. That problem is exactly the same all over Michigan. The winter season is a little longer in the Upper Peninsula, a little bit longer as you go north, but it is the same thing except as to length.

Mr. ROMMEL. You might make the same remark in regard to the problem of winter maintenance in Mississippi, for instance, where they only have about two or three months of winter.

Mr. McLAUGHLIN of Michigan. I don't know anything about Mississippi.

Mr. HUTCHINSON. You said that the experiment station did not ask for this assistance, did you not?

Mr. ROMMEL. We have no specific formal request from them.

Mr. HUTCHINSON. Did you have any from the farmers up there?

Mr. ROMMEL. From the farmers and landowners in the Upper Peninsula.

Mr. HUTCHINSON. A number of them or one or two?

Mr. ROMMEL. Yes, sir; there are a number of organized bodies up there that have made the request. A number of farmers have made the request—landowners and people of that kind; the Upper Peninsula Development Bureau—people of that sort—are the ones that are anxious to have this work carried on.

The CHAIRMAN. What do you propose to do at Beltsville after you abandon that station?

Mr. ROMMEL. I did not intend to give the impression that we were going to abandon Beltsville.

The CHAIRMAN. The particular activity that you have been carrying on there will be abandoned?

Mr. ROMMEL. The beef-cattle work that we have been carrying on there during the past two seasons at Beltsville will be carried on at

McNeil, Miss. We haven't room at Beltsville to conduct beef-cattle work.

The CHAIRMAN. What is the character of your activities at Beltsville?

Mr. ROMMEL. The work will be confined to sheep, hogs, goats, and poultry, with a little work on work horses in addition.

The CHAIRMAN. Can it not be better conducted in one place, under one roof and under one management? Could it not be carried on more economically and more successfully in that way?

Mr. ROMMEL. Yes; more economically; and then you would not be able to study these regional problems. You could not get the advantage at a place like Beltsville of the environment such as you have in the far West, for example.

The CHAIRMAN. Why?

Mr. ROMMEL. Because the climate is different, the rainfall is different, the soil is different—a thousand and one things are different.

The CHAIRMAN. It is largely a feed proposition, is it not?

Mr. ROMMEL. Surely; influenced tremendously by the crops that you can grow, the soil you have, and the rainfall you have.

The CHAIRMAN. Do you contend that you get a bigger gain with corn grown in Michigan than with corn grown in Maryland?

Mr. ROMMEL. It is not alone the gains from feeding corn.

The CHAIRMAN. If you feed corn, hay, or anything else.

Mr. ROMMEL. But you can get different returns from pastures of different kinds. If your corn analyzes the same, which is not at all likely—corn varies in analysis—but given the same analysis, you will get similar results under similar conditions; but you can not grow blue grass in Mississippi; you can not grow carpet grass at Beltsville.

The CHAIRMAN. I suppose we know that without going to Mississippi to investigate it. That is common knowledge.

Mr. RUBEY. If you are looking for a good place to go, come down into the Ozark Mountains of southern Missouri and we will find you a good place for any kind of experimentation you want. [Laughter.]

Mr. JONES. Or, in the absence of Mr. Tincher, I will suggest Kansas.

Mr. CANDLER. I suggest that McNeil, Miss., is a splendid place.

Mr. ROMMEL. The next item is the item for the increase in Idaho at the United States sheep experiment station. The department estimate for this increase is \$82,290. That station was established in 1915 by Executive order. Twenty-eight thousand acres of land were withdrawn in what was then Fremont County, Idaho, and is now Clark County, Idaho. The experimental flock which had been carried since 1906 near Laramie, Wyo., was transferred to this new location. Since then we have been equipping it as funds were provided, and the work has gone far enough now where we are making a formal request for an enlargement of the work, so that it will be representative of range conditions.

Of this amount of \$82,290, the department is asking for \$45,000 for the purchase of hay land. Our expenditures for hay with a flock the size that we believe is necessary will be in the neighborhood of \$20,000. If we have hay land provided, we will in the course of time, say after about three years, be able to raise most or all of the hay that we need and a considerable portion of the grain. At the present

time we have to buy all the hay, because this land that we have is strictly grazing land, always has been, and it always will be.

The CHAIRMAN. Do you propose to drive the sheep to the hay land, or what?

Mr. ROMMEL. We will drive the sheep to the hay land.

The CHAIRMAN. How far would you have to drive them?

Mr. ROMMEL. About 40 miles. We hope to be able to get a ranch within about 40 miles.

The CHAIRMAN. Irrigated?

Mr. ROMMEL. Yes. The remainder of the appropriation is for buildings, for the construction of fences, and for the increase in expenses for feed and labor. Also we are asking for \$600 for the purchase of an automobile for the superintendent.

Mr. JONES. Where can you get an automobile for \$600?

Mr. ROMMEL. A Ford, I believe, can be purchased for that amount.

Would the committee be interested in some photographs of that station, Mr. Chairman?

The CHAIRMAN. You might show them.

Mr. ROMMEL. This first photograph [exhibiting photograph] illustrates the headquarters. This building here is used for three purposes: The superintendent has his residence in the corner; the next two windows are the office; the next window is where the cook lives; and at the end here is the mess hall. The next building is the ice house; the next building the pump house; and the building off in the corner is the bunk house for the men. This building [indicating] is the lambing shed.

This photograph [indicating] shows the main reservoir. It will hold about 15,000 gallons of water. That was what made the station possible. This land had never been used except for a few weeks in the spring and a few weeks in the fall, because there was no water on it. It is good grazing land but no one had ever gotten any water there, except one little corner where a ditch had been carried across. It is too high to be irrigated, but our men went at the job and put in a well, and we have at 750 feet a splendid flow of water, and the water outfit cost us right around \$9,700 complete.

This picture [indicating] shows the men digging a trench from the reservoir down to the buildings. The ditch goes almost all the way through lava rock and is extremely hard digging. We had to put pipes down four and a half feet to get below frost. Now we could, if we wanted to, deliver water from that reservoir by gravity over practically half of the ranch, but the expense of digging trenches makes that out of the question, so we have installed small auxiliary tanks out on the range 3 miles apart and 3 miles from the main reservoir. We find that we can haul water to those tanks and keep them filled and keep the sheep supplied. Those tanks hold about 7,500 gallons and the trough holds 1,500 gallons.

This is a picture of the flock in winter on the range [indicating]. The thermometer was 35° below zero when that was taken. During the summer the main portion of the flock is run on Targhee Forest, which is about 12 miles away from headquarters. We get the same sort of arrangements there that any private flock owner has to meet.

Mr. McKINLEY. About how many sheep have you?

Mr. ROMMEL. We are carrying about 1,200 ewes now. What we hope to do when this work is properly developed is to have 4,000 ewes so that we can have several bands of sheep. The thought in mind is that if we are conducting our experimental work with full-sized commercial bands of sheep, we are then studying the problems of the flock as they confront the sheepman. We have already worked out two problems that are of importance. The first one is the relationship between length of fiber and coarseness of fleece or fineness of fleece, whichever way you wish to put it. The western men have always insisted that a fleece should be extremely fine, because in that way we get the weight, but we find that by selecting for length of fleece we get just as heavy a fleece, but we get a somewhat coarser fleece, which, however, is more in demand in the market than the extremely fine one.

Similarly we have studied the problem of the relationship between the covering of the face and the weight of the fleece. A sheep with a heavily woolled face, is objectionable on the range because it can't see and often becomes blinded in winter. We have found that we can get practically as good results in yield of wool from an open-faced sheep as from a close-faced sheep.

Mr. CANDLER. What variety of sheep did you experiment with?

Mr. ROMMEL. The main part of the farm flock is Rambouillet. Then we have the Corriedales, imported in 1914 on authorization of Congress. Since 1913 we have been developing a strain of Lincoln on Rambouillet, and that, apparently, is going to answer the question that was presented to us when this work was started nearly 15 years ago. Sheep men say that apparently, in this Lincoln-Rambouillet sheep, we have the breed for the western range.

The CHAIRMAN. How much have you invested in Idaho, altogether?

Mr. ROMMEL. Do you mean, permanently?

The CHAIRMAN. Yes.

Mr. ROMMEL. The expenditures for permanent improvements in Idaho, to date, including equipment, such as the lighting plant, the work on the roads, fencing, wagons, farm machinery, etc., is \$31,200.

The CHAIRMAN. You have to construct new buildings on the hay land?

Mr. ROMMEL. No; we hope to get a ranch with buildings already on it. The additional buildings that are called for here are a horse barn, an addition to the lambing shed, a granary for storage, and a cottage for one of the men.

The CHAIRMAN. On the land to be purchased?

Mr. ROMMEL. Right in connection with this station here. At present this building here [indicating] is not only the lambing shed but it is the horse stable, the warehouse, the shearing shed, and the machinery shed. We hope to add to it somewhat, and get the horses and the grain out of there.

The CHAIRMAN. What is the prevailing price of hay land there?

Mr. ROMMEL. It will cost somewhere around \$200 an acre. We estimate we will get in the neighborhood of 225 acres for \$45,000.

Mr. SMITH of Idaho. That includes the permanent water rights too?

Mr. ROMMEL. Yes; we want one with a permanent water right. We could not afford to go anywhere except with that.

Mr. JACOWAY. What will it cost a ton to put up this hay?

Mr. ROMMEL. It will not cost more than \$8 or \$10, at the very outside.

Mr. JACOWAY. What have you been paying for it?

Mr. ROMMEL. We got our hay at \$15 in the stack this year. We were very fortunate that we got in before the raise. We bought a little at \$18, but most of our hay we got at \$15 a ton in the stack, 512 cubic-foot measurement.

Mr. JACOWAY. What is the object you have been driving at in all this 15 years in the work out there? What is the thing you want to accomplish? How near are you to accomplishing it?

Mr. ROMMEL. The first thing we wanted to see whether it was possible to develop a breed of sheep that was in itself satisfactory for range purposes. The average western ranchman, before we got into this work, never followed any specific line of breeding. For instance, he would have a fine-wooled band of ewes and breed them to long-wool bucks. Then by-and-by he might go back to the fine-wool breed; then he would have, possibly, what we call his lamb band, the ewes in which would be bred to black-face bucks.

Mr. JACOWAY. Then, from this you have got a standard breed that will thrive in that country?

Mr. ROMMEL. That is the first thing we set out to do, and apparently we have it in the Lincoln-Rambouillet cross.

Mr. JACOWAY. Will that breed of sheep do for the South?

Mr. ROMMEL. I am beginning to think that it will. That is one of the questions that I hope to see answered in the next few years. I am beginning to think that possibly not this cross-breed variety that we have in Idaho, but a sheep with some of that blood in him, may be satisfactory under southern conditions.

Mr. JACOWAY. In the South we have got land that has got all the water on it you want, that will raise all the hay that you want, cut-over land that can be gotten for from \$3 to \$5 an acre; and it is your opinion, then, after studying this, that the sheep business can be made profitable in the South like it is out there, and the same breed of sheep can be used?

Mr. ROMMEL. A similar grade of sheep. There are problems of the sheep industry in the South peculiar to that section. There are sheep all over the South, you know. You find them everywhere. You find them in your country, Mr. Candler, in Mississippi.

Mr. JACOWAY. There are as many different kinds of sheep as there are farms on which sheep are raised.

Mr. SMITH of Idaho. May I ask a question? What proportion of the appropriation of last year, or the previous year, has been returned? That is, what proportion of the appropriation has been earned by reason of the conduct of these experiments?

Mr. ROMMEL. That is increasing every year. The amount that will be returned this year into the Treasury will be, as near as we can approximate now, \$13,000.

Mr. SMITH of Idaho. And the appropriation was only \$20,000 last year?

Mr. ROMMEL. \$20,720.

Mr. SMITH of Idaho. And if this appropriation is granted and experiments are conducted as you plan, with the enlargement of the plant, and so forth, will that proportion of return likely increase?

Mr. ROMMEL. Oh, yes.

Mr. SMITH of Idaho. And the station in a few years will be made self-sustaining?

Mr. ROMMEL. I would not care to promise that the station will be made self-sustaining, but in some years it probably will be. We expect that the revenue from this station will, if it is carried on this basis that we have recommended, amount to not far from \$30,000 a year.

Mr. SMITH of Idaho. Do I understand that you dispose of these sheep after you breed them up?

Mr. ROMMEL. Yes, sir.

Mr. SMITH of Idaho. You dispose of them to the farmers around in that particular section of the country?

Mr. ROMMEL. We put into the sales at Salt Lake, under the National Woolgrowers' Association, some of the choicest ones, especially ones that we want people to see, you know, to see what we are doing. Others are sold to farmers and ranchmen.

Mr. SMITH of Idaho. So, under your plan, the stockmen, the sheepmen all over the western country, get the benefit of your experiments?

Mr. ROMMEL. Yes, sir; the work at this station applies to a very large area of territory: Idaho, Wyoming, Montana, Nevada, Utah, and Colorado, and to a considerable extent to Washington, Oregon, California, Arizona, New Mexico, and Texas.

Mr. JACOWAY. How many sheep can you support on an acre of ground?

Mr. ROMMEL. In that section it takes several acres.

Mr. JACOWAY. How many?

Mr. ROMMEL. We are going to run about 4,000 ewes, if Congress gives us sufficient appropriations. We have 28,000 acres of land. That is about 1 ewe to about 7 acres.

Mr. RUBEY. Are you having any trouble out there from the depredations of animals among the sheep?

Mr. ROMMEL. We are not, yet, because we watch them very carefully. One of the items that we propose to put in with this appropriation will be the construction of coyote-proof fences, and then we will exterminate any coyotes that may be inside of those fences. The fences will be built so that coyotes and wolves can not get through.

Mr. RUBEY. Can you manufacture a fence that a dog won't get through? If you can, we raise some sheep in my country, and we would like to know about it.

Mr. ROMMEL. A dog can't go through a coyote-proof fence. In building a fence, if you will put a barbed wire, stretched tight, on the ground, and then to make insurance doubly sure put another one on the other side of the post, right on the ground, and then start with 36 inches or 3½ feet of woven wire, not more than 6-inch mesh, and have the bottom of that wire not more than 3 inches from the ground, put a couple of strands of barbed wire on top of that, and keep the holes underneath filled up, no dog will go through or over.

Mr. RUBEY. That is the great difficulty we have in the South—the dogs.

Mr. HUTCHINSON. Doctor, I want to renew my question now as to why it is necessary to have a plant like this; why it is necessary for the Government to have a plant as large as this?

Mr. ROMMEL. I am glad you asked that question. The reason for it is that we want the conditions under which we are doing this experimental work to match up as closely as they can with the work that the ranchmen, our neighbors, are doing. We want a ranchman to go to that station and know that the problems that we are meeting there are the problems that he meets every day in his business; if he has a band of sheep over here in the hills, or half a dozen bands of sheep, we want to be able to take him to a band of sheep, and not merely a few head. Take, for example, these cross-breeds that I spoke of, we want to show him that here is a successful band of those sheep all of which are bred in the same way. We want each band of sheep used to demonstrate one problem that we are studying. On the basis recommended we will be able to handle at least four bands, counting 1,000 ewes in each band.

Mr. HUTCHINSON. Do you have different breeds?

Mr. ROMMEL. We have several breeds—Rambouillets, which are practically pure bred; the Corriedale sheep, which were brought from New Zealand; and these crossbred sheep, the Lincoln on Rambouillet; as well as some crosses from Corriedale and long-wool breeds besides Lincolns.

Mr. ANDERSON. How far is this station from the railroad?

Mr. ROMMEL. It is 6 miles from the railroad station. The main line of the railroad from Salt Lake to Butte runs right along the western edge of the station.

The CHAIRMAN. Do you wish to say more, Mr. Smith?

Mr. SMITH of Idaho. I just wanted to have the privilege of having inserted in the record, following Dr. Rommel's testimony with reference to this experiment station, a statement that I have.

The CHAIRMAN. Do you desire to read it?

Mr. SMITH of Idaho. I don't want to take the time of the committee to read it, but I would like to have it go in the record, if I may.

The CHAIRMAN. Without objection, it will be inserted.

(The paper referred to follows:)

THE STATUS AND WORK OF THE UNITED STATES SHEEP EXPERIMENT STATION.

The United States sheep-experiment station is located at Dubois, Clarke County, Idaho. It was established by Executive order No. 2268, dated October 30, 1915, withdrawing from settlement 28,160 acres of nonagricultural public land, to be used "as a sheep breeding and grazing experimental station." The Agricultural appropriation acts for the years ending June 30, 1918, 1919, and 1920 provided \$20,720 per year for the equipment and maintenance of this station. The experimental flock now numbers 1,200 breeding ewes, in addition to lambs and rams.

The equipment and improvements placed upon the station's land consist of five buildings, a deep-well watering system, fences, roads, work stock, etc., representing a total outlay since July 1, 1917, of \$31,483.

OBJECTS OF THE SHEEP EXPERIMENT STATION'S WORK.

From 1906 to 1917 the Bureau of Animal Industry maintained a small flock for experiments in breeding range sheep. This flock was kept at relatively heavy expense on a privately owned ranch at Laramie, Wyo. In order to attempt the solution of some of the range problems in a practical and satisfactory way it was found necessary to use larger numbers of sheep, and to have them and the range upon which they grazed under the full control of the bureau at all times.

This station at Dubois was established for the investigation, in an experimental way, of questions affecting the production of wool, lamb, and mutton on

the ranges in Idaho, Wyoming, Montana, Nevada, Utah, and Colorado. This work is also considered to be of value, though less directly, to the sheep raisers of Washington, Oregon, California, Arizona, New Mexico, and Texas. These 12 States have 27,224,000 of the 49,863,000 sheep in the United States on January 1, 1919.

The 11 range States (Texas excluded) contain 211,277,000 acres of unreserved unappropriated public land in addition to 130,184,700 acres in national forests. On by far the larger part of these remaining public lands, as well as upon a great deal of privately owned land, the grazing industry will remain paramount. The utilization of these lands in the most scientific way and with the most useful types of animals is vital to the range States themselves, but also vital to the production of food and clothing for the entire country.

There is no other station in these 11 range and public-land States having facilities for conducting experiments in range sheep production. A large area was needed to permit handling of a number of bands (1,000 to 1,800 head) of range sheep under different methods to show the most economical ways of utilizing the range and of breeding and handling the sheep.

PLAN OF STATION'S WORK.

The experiments have been planned and so far as facilities allow are being conducted under four main heads, as follows:

1. Methods of grazing the range to secure greatest returns.
2. Methods of handling and feeding range sheep for maximum quantity and quality of lambs and wool.
3. Types of sheep for the range.
4. Systems of handling sheep on stock-raising homesteads.

Methods of grazing the range to secure greatest returns.—Experiments under this head will be started as soon as a larger number of sheep are available and sufficient fencing can be erected to insure complete control of the range used.

The feed-producing capacity of a large part of the range area has been seriously impaired by overstocking and by lack of a rotation of grazing times to permit reseeding of the grasses. The sheep experiment station's work in this field will be planned to show (1) the acreage required per 1,000 head at a reasonable rate of stocking and when overstocked; (2) the gain in feed production per section of land from observing a rotation of grazing periods to permit reseeding; (3) the extra cost and extra returns of keeping range sheep in fenced areas as compared to herding on the range; (4) to afford a fair measure of the number of sheep that can be supported on a section of such land as is controlled by the station.

Methods of handling and feeding range sheep for maximum returns.—Studies along this line are now in progress. They include (1) size of lamb crop as affected by number of rams and care of rams, time of breeding, condition of ewes, methods of lambing; (2) amount and kinds of feed for winter feeding with greatest economy and to produce largest yields of wool and lambs.

Types of sheep for the range.—Up to the present the experiments conducted have related chiefly to this branch of the work. High-grade Rambouillet stock has been used from the start. In 1915 a flock of Corriedale sheep was imported from New Zealand under provisions of the Agricultural appropriation act for the year 1914-15. In 1913 experiments in cross-breeding were begun.

This branch of the work also includes a study of various types of individuals within the Rambouillet breed, with reference to face covering, skin folds, and length and fineness of wool as they affect the weight and value of fleece.

The results of these experiments are now being prepared for publication. Brief presentations of some of the phases of this part of the investigation are contained in the succeeding pages.

Systems of handling sheep on stock-raising homesteads.—The plan of work provides for fencing of separate sections for study of methods of management and the kind of sheep that may be used to secure greatest net returns from the keeping of sheep on stock-raising homestead lands.

PARTIAL SUMMARY OF WORK ON "TYPES OF SHEEP FOR THE RANGE," CONDUCTED AS PART OF "RANGE SHEEP INVESTIGATIONS," AT THE UNITED STATES SHEEP EXPERIMENT STATION, DUBOIS, IDAHO.

BREEDING FINE-WOOL SHEEP.

A. Face covering.—In breeding sheep with production of fine wool as the chief aim, breeders have generally produced a sheep with a face closely woolled up. This feature has been objected to by some ranchmen, but it has been held

that the fleece weight would decline if the wool was bred off the faces. The bureau's records prove that it is possible to have the advantage of an open face without losing in weight of wool.

Year.	Open-faced sheep.			Closed-faced sheep.		
	Num-ber.	Average weight fleece.	Average weight fleece.	Num-ber.	Average weight fleece.	Average weight fleeca.
		<i>Pounds.</i>	<i>Pounds.</i>		<i>Pounds.</i>	<i>Pounds.</i>
1916.....	1 15	12.14	88	104	11.08	80.25
1917.....	1 27	9	77	54	8.6	68
1918.....	1 16	10.6	79	36	11.8	74

¹ Yearlings; weights given are for first fleeces.

B. Length and fineness of fleece.—Breeders of fine wool sheep, which until recently predominated on the range, have always emphasized weight of fleece and fineness of fiber. The bureau's data show that money returns can be better increased by selecting for longer wool even though it is less fine. By increasing length the weight and pound value of the fleece are both added to. The longer fleeces are shown to be ordinarily a little less fine, but this is associated with greater size and vitality.

Below are shown the weights of wool obtained from sheep of varying fleece weights over a period of eight years:

Length of wool.	Average weight of fleece.	Number fleeces.
	<i>Pounds.</i>	
1.5 inches or less.....	9.8	29
1.5 inches to 2 inches.....	10.2	505
2 inches to 2.5 inches.....	11.3	1,080
2.5 inches to 3 inches.....	11.7	369
Over 3 inches.....	11.9	65

The fact that increased length is associated with coarser fiber is shown in the table below. These results show that in breeding for length it is well to select for 56s or 58s wool. The data on hand also show that with the somewhat coarser wool there is better character. The fineness is shown in "counts," 56s representing commercial wool of the half-blood grade, and the higher counts the higher grades.

Length of fleeces of varying fineness as shown.

Year.	56s.	58s.	60s.	62s.	64s.
1915.					
Average length.....inches.....	2.5	2.35	2.3	2.4	2.3
Number.....	26	48	47	32	20
1916.					
Average length.....inches.....	3.06	3.01	2.5	2.5	2.4
Number.....	4	23	72	136	197
1917.					
Average length.....inches.....	3.2	2.9	2.5	2.4	2.2
Number.....	8	12	40	129	178
1918.					
Average length.....inches.....	2.5	2.5	2.5	2.3	2.2
Number.....	2	20	106	186	86

Types of sheep for the range.—Since 1913 range sheep men outside of the Southwest have been forced to breed along new lines to produce both wool

and mutton. The system of crossing back and forth with long wool and fine wool rams has many drawbacks. The type of sheep secured from the first cross of long-wool rams upon fine-wool ewes has produced a satisfactory sheep, but it was not considered possible to breed in such a way as to retain this type.

The bureau's experiments with breeding Lincoln-Rambouillet crossbreds strictly within themselves has produced a sheep which ranchmen have pronounced to be what is needed. This experiment has also demonstrated the system of breeding to be followed in producing such a sheep.

Corriedale sheep were imported from New Zealand in 1914 as a part of the study of the same problem. They have been found to be quite well adapted to Wyoming and Idaho ranges.

Records on a few points of these two types of sheep are presented along with similar figures for grade Rambouillets kept in the same flock.

Year.	Lincoln-Rambouillet crossbreds.				Corriedales.				Rambouillets.			
	Num-ber ewes bred.	Per-cent ewes lambed.	Aver-age weight fleece.	Aver-age weight yearling ewes.	Num-ber ewes bred.	Per-cent ewes lambed.	Aver-age weight fleece.	Aver-age weight yearling ewes.	Num-ber ewes bred.	Per-cent ewes lambed.	Aver-age weight fleece.	Aver-age weight yearling ewes.
1916.....	50	88	13	102	64	92	10.2	.....	537	85	11.89	82
1917.....	65	89	10	80	61	92	8.2	70	503	76	9.05	72
1918.....	47	87	.....	82	83	85.5	10.5	77	413	90	12.86	75
1919.....	43	74	12.9	96	114	96	10.8	80	438	87	11.7	82

ESTIMATES OF APPROPRIATIONS FOR RANGE-SHEEP INVESTIGATIONS.

An increase of \$82,280 in the appropriation for "Range-sheep investigations" is included in "the estimates of appropriations for the Department of Agriculture for the year ending June 30, 1921" (p. 52), as submitted to the second session of the Sixty-sixth Congress.

The department's work in range-sheep investigations is conducted at the United States sheep experiment station, located at Dubois, Idaho. A brief outline of the work of this station and the plans for making it of greatest service accompanies this report.

The increases estimated are for three main purposes:

Purchase of land to raise winter feed.....	\$45,000
Feed, labor, and salary.....	22,500
Completing equipment for experimental work.....	14,780

The present allotment for this project is \$20,720. With the above increases for 1921 the total outlay would be \$108,000. The annual expenditures for succeeding years, if the increases are received, would be in the neighborhood of \$35,000, with a return to the Treasury that in some years would equal that amount.

EXPLANATIONS AND DETAILS OF INCREASE.

Purchase of land to raise winter feed.—The land used by the sheep experiment station has no irrigation water and produces no harvested crops for winter feeding. In 1919, \$10,000 was paid for hay (400 tons at \$17 per ton) and grain for the 1,200 ewe flock and the work stock. On the basis of a 4,000 ewe flock, which it is desired to keep, from 900 to 1,000 tons would be needed each winter. This amount of hay could be produced on 300 acres of land, which would cost not less than \$150 per acre. There would be the expense of labor on the hay ranch and water fees, as compared to paying from \$15 to \$22 per ton, as has been necessary during recent years. The saving in feed bills, at present rates, would pay for the land in five years.

¹ Owing to an error these items are slightly different from those shown in the estimates. The totals are the same.

Feed, labor, and salary.—The increases estimated under this head are for use as follows:

Hay	\$13,000
Labor	5,000
Grain	2,500
Salary	2,000
Total	22,500

Of the above the item for increased expenditure for hay would be unnecessary after the first crop had been secured from the land purchased.

These items are intended to allow keeping a 4,000 ewe flock, which is desirable to carry on the experiments along practical lines that will be representative of the general ranchman's conditions, and in the most economical way. Sheep ranchmen would not put into practice results of experiments in grazing in which a small number of sheep were used to a lot. Such results would not necessarily hold true under general range conditions.

One herder can attend to 1,000 sheep on the range as well as to a smaller number. As the winter feed is all that is paid for, the expense of 4,000 sheep, aside from feed, would be less than double that for 1,200 at present.

In 1920, 400 tons of hay were purchased for \$7,000. For the larger flock 1,000 tons would be needed. At the very probable rate of \$20 per ton this would require \$20,000, or an increase of \$13,000.

Three additional full-time men would be needed and two part-time men. The ruling rate of wages in the vicinity of the station is now \$100 per month and board.

It is desired to provide for a second man who can assist and substitute for the superintendent at the station and in educational work in cooperation with the State extension departments and in field studies of sheep breeding.

An income of \$19,000 received from the sale of wool and sheep will be converted into the Treasury during 1919-20. Even with lower prices in the future, with a larger flock the returns should exceed this by a considerable amount.

Completing equipment for experimental work.—The following buildings and equipment are necessary with the present-sized flock:

One residence for assistant to superintendent	\$4,000
One horse and hay barn, addition to lambing shed	3,000
Grain storage	1,000
Automobile for superintendent's use	600
Fencing experimental pastures	4,000
Water lines, hay ranch tools, and machinery	2,000

One or all of the first three items could be located upon the hay-producing land, but if not, would be needed at the present headquarters.

The fencing and stock-watering facilities are needed for the grazing experiments and for utilization of the present grazing lands.

The CHAIRMAN. Tell us of the \$5,000 increase at Beltsville.

Mr. ROMMEL. That request for \$5,000 increase at Beltsville, Mr. Chairman, is to take care of increased expenses at the station. We have had no increase in the appropriation for the maintenance of the farm at Beltsville for several years. We have had some slight increases for the experimental work that has been done there, but nothing whatever to pay for the strictly farm work itself.

The CHAIRMAN. I understand you are going to abandon some of the work there?

Mr. ROMMEL. That work is one of the very small items of the farm.

The CHAIRMAN. You are going to extend the other activities?

Mr. ROMMEL. Yes; we want to meet expenses as they ought to be met. We have been compelled to draw on other projects in order to meet expenses that ought to be charged strictly to the experi-

mental farm at Beltsville. And that is the real reason for asking for this increase for miscellaneous supplies. It is the high cost of living in handling an experiment station of that nature. That is exactly what it is, in a word.

Mr. JACOWAY. As you develop this breed of sheep, and everyone knows it is a success, what is the object then of continuing the station?

Mr. ROMMEL. That is the first one of our problems that we have worked out there. There are four main problems at that station. The first one is the study of methods of grading to secure the greatest returns. The second is the study of methods of handling and feeding range sheep for maximum quality and quantity of lambs and wool. Third is the question of the types of sheep for the range, which we have partly answered; and fourth, the system of handling sheep on stock-raising homesteads.

There are four problems that will keep anybody busy for a good long time. We have not answered all the questions. We think we have made an approach to answering this one question.

Mr. HUTCHINSON. Doctor, in case we give these increased appropriations, with all these experiments, do you think it will ever reduce the cost of living?

Mr. ROMMEL. I hope so.

Mr. HUTCHINSON. I know, but I asked if you thought it would.

Mr. ROMMEL. The reduction of the cost of production ought to help. That is the ambition of all of us.

Mr. HUTCHINSON. I know, but it seems that the appropriations increase and the cost of living increases also. I don't see where we are gaining anything.

The CHAIRMAN. What about this soft pork item?

Mr. ROMMEL. We are starting the soft pork investigations under an appropriation granted last year.

The CHAIRMAN. What progress have you made?

Mr. ROMMEL. We have fed some hogs in Southern States that were fed on feeds that we were pretty certain were soft pork producing feeds, and those hogs are now coming in from the outlying stations, are being slaughtered at Beltsville, and a chemical analysis of the fats is being made. We are searching for a competent chemist to put in charge of the chemical work, and we hope to have him before the end of the fiscal year.

The CHAIRMAN. You have no report to make on that?

Mr. ROMMEL. We can not tell you anything except just something of general interest, Mr. Chairman, on that matter. We killed a hog at Beltsville the other day, which came from North Carolina, that had been fed on peanuts. We took some of the pork and made sausage of it, and we could not make that sausage into sausage cakes. We would make little pads of it, lay them out on the pan, and they would flatten out. We made lard from the fat of that hog, and when taken in the hand and squeezed the oil would drip out.

The CHAIRMAN. That is evidently soft pork?

Mr. ROMMEL. I don't think there is any argument about that.

The CHAIRMAN. What do you propose to do?

Mr. ROMMEL. Of course, we want to go at this problem with the idea of solving it. That is the reason we are going slow. Every step that we take will be taken right.

The CHAIRMAN. Have you anything in mind?

Mr. ROMMEL. We have. The first thing we want to do is to find the cause of the trouble. I don't mean what kind of feed you can give them, but what is the reason if you feed hogs penauts, for example, the pork is soft. Now, what is the reason for that, and, also, if you feed him soy beans the pork may be soft? On the other hand, why is it that some other condition may develop, that hog may ostensibly be fed on these soft-pork feeds, and yet the pork will be firm? There may be some physiological questions involved. Now, we are able to do a very large amount of this work right at Beltsville. But to revert to a question you asked a while ago, we can't study the peanut side of this problem at Beltsville, because they can't grow peanuts there.

The CHAIRMAN. You can buy them?

Mr. ROMMEL. No, sir.

The CHAIRMAN. Why?

Mr. ROMMEL. Because the hogs are fed by having them harvest the peanuts. You have a peanut crop and you turn the hogs in on the peanuts. That is where soft, peanut-fed pork comes from. Nobody buys peanuts to feed to hogs, he grows them; and no farmer would listen to us if we told him that we went out and bought peanuts to feed to hogs. He would say we didn't know anything about feeding peanuts to hogs; but if we raised the hogs and raised peanuts to feed them, he would listen.

The CHAIRMAN. Is there a considerable number of hogs fed on peanuts?

Mr. ROMMEL. Thousands of them.

The CHAIRMAN. Is that profitable?

Mr. ROMMEL. Absolutely so. It is an extremely profitable way to feed them, but the trouble is that the peanut hogs are docked all the way from 3 to 10 cents a pound.

Mr. McLAUGHLIN of Michigan. Isn't it true that you find soft pork all over the country, and practically the only way out of it is to feed them corn?

Mr. ROMMEL. I hope it is not true, but I am afraid it will be true with the increase in the use of soy beans for grazing hogs.

Mr. McLAUGHLIN of Michigan. If a farmer in Iowa raises hogs and don't finish them on corn, it is practically soft pork the same as you have in Virginia, isn't it?

Mr. ROMMEL. Now, I am going to ask you a question. Why is it that in Ontario they get soft pork from feeding corn?

Mr. McLAUGHLIN of Michigan. I don't know.

Mr. ROMMEL. I don't know either.

Mr. CANDLER. It is a part of the problem to find some feed by which this pork can be hardened and made more useful?

Mr. ROMMEL. That is part of the problem. The first thing we want to do is to find out what the cause is, and the next thing how to cure it.

Mr. JACOWAY. You can take an acre of Spanish peanuts and get all the nuts off of it, and then you can turn the hogs in there, and each acre will fatten two head of hogs. Now, can't you round those hogs out on about five bushels of corn and harden the pork?

Mr. ROMMEL. I don't know whether that is a fact, Mr. Jacoway. There is a very strong impression that once a peanut hog always a peanut hog.

Mr. RUBEY. What about range hogs?

Mr. ROMMEL. They are not quite as bad, but almost. The first attention to soft pork in this country came from the hogs that were fed on acorns, and then after that we got into the business of feeding hogs on peanuts.

Now, I want to say this much about this question: What makes this one of the biggest regional problems in the hog industry—that is, if Mr. McLaughlin's intimation is true—is that we may get soft pork all over the country. We have here a most serious question, whether hogs can be finished firm on corn or not. If it is true that any oily feed makes soft pork, look out for soft-pork trouble from other things; soy beans, for instance.

Mr. McLAUGHLIN of Michigan. They have already been advised against soy-bean fattening. The farm papers tell them that.

Mr. ROMMEL. Yet more and more farmers are raising their hogs on soy beans.

Mr. McLAUGHLIN of Michigan. They are doing that in the first instance and then finishing them on corn. The farm papers, a number of them that I have seen, are advising farmers against feeding their hogs soy beans with the idea of finishing them on that.

Mr. ROMMEL. That is good advice.

Mr. PURNELL. How does a hog raised on soy feed or peanuts, for instance, compare in weight to one raised on corn?

Mr. ROMMEL. As far as the weight and gains are concerned they do just about as well. Pigs can be fattened just about as economically so far as weight and cost of feed are concerned, but the soft pork shrinks more after the packer gets hold of it. It drips, and that is the reason the packer docks it. A soft carcass loses more weight than a firm carcass will.

Mr. CANDLER. I have an uncle who used to have a big plantation in Florida and he had a great many peanuts, and he fattened the hogs in the fall of the year on peanuts and then took them off of peanuts and put them into a pen and fed them corn in order to harden the meat. I remember he raised one hog that weighed 864 pounds, but of course that was unusual.

Mr. McLAUGHLIN of Michigan. Did that process harden the meat?

Mr. CANDLER. Yes; that was his theory of hardening the meat.

Mr. HUTCHINSON. How does it affect these razorbacks down South?

Mr. CANDLER. You can't do much with them. They are mighty good meat, though.

The CHAIRMAN. Doctor, tell us more in detail what you are doing and what you expect to do next year, and how much money you are using this year for that purpose.

Mr. ROMMEL. The appropriation for soft-pork investigations this year is \$20,000.

The CHAIRMAN. Are you going to use all of it?

Mr. ROMMEL. Absolutely; every cent of it.

The CHAIRMAN. How are you spending it?

Mr. ROMMEL. The first thing we want, as I said, is as good a chemist as we can find, to conduct the chemical work on this project.

Then we will have a few assistants, and some laborers. One of the big items of expense is going to be the matter of animals and feed.

The CHAIRMAN. How much are you going to use next year?

Mr. ROMMEL. The Secretary's estimate is \$20,000.

The CHAIRMAN. For next year?

Mr. ROMMEL. Yes, sir.

The CHAIRMAN. Where is this scientific man to be located?

Mr. ROMMEL. The head chemist will be at Beltsville, at the laboratories there on the dairy farm.

The CHAIRMAN. You would employ a chemist simply for this experiment?

Mr. ROMMEL. Yes, sir. A competent chemist will be in charge of the chemical work, and will put in his entire time on it. He will have under him an analyst, who will conduct the analytical work in the laboratory, and help in other chemical work.

The CHAIRMAN. Where will all that be done—at Beltsville?

Mr. ROMMEL. Only at those points where we have to select some place for hogs to be fed on peanuts. Of course, that is in cooperation with the State stations. We have to cooperate with the State stations. They are to be in with us. We need their interest and their support in the study of these questions.

The CHAIRMAN. Will they cooperate with you in the matter?

Mr. ROMMEL. So far as spending money is concerned, I do not think so.

The CHAIRMAN. No expenditures will be required for improvements, for the purchase of land, or for the establishment of new stations?

Mr. ROMMEL. No, sir.

Mr. ANDERSON. Are we to understand that none of these States are sufficiently interested in the proposition to be willing to contribute anything to the solution of the problem?

Mr. ROMMEL. Every one of the Southern States are studying this, but there is nobody yet that has taken up this problem from the fundamental standpoint until this committee and Congress gave the department the authority to go ahead and put this thing on a fundamental basis.

Mr. ANDERSON. If there are half a dozen, more or less, of the States engaged on this work, and the Federal Government besides, it looks as if we are wasting some money somewhere.

Mr. ROMMEL. May I make another statement not in the record?

Mr. ANDERSON. Let's have it in the record.

Mr. ROMMEL. Then I can not make it.

Mr. ANDERSON. I do not want any sub rosa statements. As far as I am concerned, if it can not go into the record I do not want it.

Mr. ROMMEL. As you say.

Mr. ANDERSON. I notice you have a proposition here in item 64 to inaugurate a study of beef production on northern cut-over lands in Michigan, Wisconsin, or Minnesota. Can you tell us something about that.

Mr. HUTCHINSON. He has gone over that.

Mr. McLAUGHLIN of Michigan. That is in the record.

Mr. ROMMEL. That is in the record.

Mr. ANDERSON. I would like to know what you are going to do with special reference to Minnesota, if I may.

Mr. ROMMEL. The proposition is to establish beef-production experiments in northern cut-over lands, covering the region of the upper peninsula of Michigan, the upper part of Wisconsin, and the upper part of Minnesota. It is an outgrowth of the work of last summer for the relief of live stock from the northwestern drought area. That movement resulted in bringing in some 200,000 sheep and 75,000 cattle into that territory. Nobody had ever done a great deal of work in that section in the raising of cattle and sheep before, and a great many of those men are so well satisfied with what they found here in the way of live-stock possibilities that they want the department to take up experimental work in that area.

Mr. ANDERSON. Is that work done in cooperation with the States?

Mr. ROMMEL. Yes, sir; it will be.

Mr. ANDERSON. Have any of the States appropriated any money for this sort of work?

Mr. ROMMEL. The State of Michigan has a small station at Chatham where they have done some work on forage crops and a little on sheep but nothing on beef cattle.

Mr. McLAUGHLIN of Michigan. Will it be necessary for the Federal Government to erect any buildings at any of these places in Michigan, Minnesota, or Wisconsin?

Mr. ROMMEL. It will be impossible. The Government can not erect buildings on land that it does not own. It is illegal, and we have no intention whatever of doing so.

Mr. McLAUGHLIN of Michigan. With the permission of the State, you could acquire it by gift and would not need an act of Congress.

Mr. ROMMEL. We have no intention of doing that. It will be neither necessary nor desirable, and as the matter stands at present it is not possible. I am absolutely against it. There is no reason at all why we should contemplate the erection of buildings and everything of that kind in a permanent station in that country. There is no call for it, and it is not desirable. If anything of that kind is done, the expenditure could be made by the State. The Government should not put itself in a position in any of those places so that it can not get out without difficulty should it find it necessary to do so.

Mr. McLAUGHLIN of Michigan. On the other side of this question, my understanding is that it is not a State proposition at all. You have not told us of a word from a State official in regard to this proposition in Michigan. It is a request from a few of the residents up there. There is not a State there that has had any conference with you so far as you have stated and I have tried to bring out as to whether there had been or not.

Mr. ROMMEL. We had a conference at St. Paul in July attended by about 200 people, Mr. McLaughlin. That was attended by State officials from the States we are discussing and the Western States on the drought relief area. This question was given very earnest and emphatic consideration at that time. I say we have no formal request, we have no formal letter that I can lay before you; but we have been in conference with State officials, and with officials of agricultural colleges of every one of those States. They were at the conference at St. Paul and these questions came up. We have that. If you ask me for a dogmatic statement along these lines, I can not give it to you. I can not do the impossible. But we have the requests,

many of them, from the people that are in that region and interested in its development, who are anxious to have the cooperation of the department.

Mr. ANDERSON. Are these people actual settlers or land speculators?

Mr. ROMMEL. They are landowners and settlers.

Mr. JACOWAY. Are they large landowners?

Mr. ROMMEL. Some own several thousand acres.

Mr. JACOWAY. Of cut-over lands?

Mr. ROMMEL. Yes; what is left after the timber has been taken away.

Mr. RUBEY. Are these lands owned by corporations that cut over the land and took the timber off or are they owned by the men who have purchased the land from these corporations and who are trying to farm them?

Mr. ROMMEL. They are both. The largest tracts of these lands are owned by the timber companies. Then in addition to that you will find men such as Mr. Frank Hagenbarth, of Idaho, who went in and bought large tracts of land.

The CHAIRMAN. Will you tell us something about your Morgan horses.

Mr. ROMMEL. No, sir; I am not discussing that.

The CHAIRMAN. I notice that is in the note.

Mr. ROMMEL. The note you refer to is this, that one of the points at which we would start investigations in beef production would be at the Morgan horse farms.

Mr. ANDERSON. Is there anything in the general situation in the New England States that would justify a belief in the successful conduct of beef-cattle operations?

Mr. ROMMEL. There is a growing interest in beef production in New England, largely due to the shortage of labor. There was, 40 years ago, in the Champlain Valley, the very section where the Morgan horse farm is located, a considerable beef production industry. That went out with the rapid development of the West, and it has never come back.

Mr. ANDERSON. That is the exact proposition I was trying to get at. Is there now such a relation in cost of production in the New England States and the West that there is any probability that the New England States would be able to compete with the West in beef production?

Mr. ROMMEL. Yes; there are herds of beef cattle being established, especially the dual-purpose kinds. One of the leading dual-purpose Shorthorn herds in New England is in the Champlain Valley, and there is quite a bit of interest in that matter. It has even gone so far that there are certain men here and there who have gone to Texas for steers to feed in New England.

The CHAIRMAN. But there is not sufficient demand to interest the State experiment stations?

Mr. ROMMEL. No; the State experiment stations' funds are entirely confined to studies of dairy production.

The CHAIRMAN. Have all of the experiment stations lost interest in beef production?

Mr. ROMMEL. I do not believe that any station in New England is doing anything in beef production. I do not recall that they are.

The CHAIRMAN. Are they doing any of that work in the States that you have reference to in the notes?

Mr. ROMMEL. There is some independent work in beef production going on in practically all of these States. In the States that are mentioned as doing cooperative work with the department there is no duplication with any work that the State itself is carrying on.

The CHAIRMAN. They are not doing anything independent of the Federal Government?

Mr. ROMMEL. Yes; they are doing work independent of the Federal Government. Their work is not entirely tied up with us.

The CHAIRMAN. Is it necessary to carry it on in two places in the same State?

Mr. ROMMEL. Oftentimes; yes, sir.

The CHAIRMAN. Have you anything else that you wish to say?

Mr. ROMMEL. I have nothing else; no, sir.

Mr. McLAUGHLIN of Michigan. That work in Vermont does not strike me very favorably, Doctor. I do not know why, in an old State like Vermont, where they have worked on this proposition for a long, long time, they would not be able to do it themselves if they want to have it done. I am not greatly moved by this desire on the part of a few people who want the Government to bear the expense and request the Federal Government to do some of this work. Individuals like to throw the burden on the Federal Government. There is hardly a State in the Union that is not trying to avoid its responsibility, evade its duty, trying to throw the burden on the Federal Government to do the work that they ought to do themselves. If you have some particular reason for taking up this work in Vermont, that is one thing. But I say it does not appeal to me. I would like to know what your reason is.

Mr. ROMMEL. We want to find out, if we can, whether it is possible economically to establish a herd of beef cattle in New England. That is one of the things we want to know, and the State has not taken this up for the reason that all the funds they have are taken up with the study of dairy problems.

Mr. McLAUGHLIN of Michigan. They are abundantly able to do it, are they not?

Mr. ROMMEL. They have not the funds.

Mr. McLAUGHLIN of Michigan. Do you mean to say that your interest in the people of Vermont is greater than the interest of the State Government in its own people?

Mr. ROMMEL. No; not at all.

Mr. McLAUGHLIN of Michigan. It would strike me that if that problem is before them and they do not care to take it up it is going pretty far for the Federal Government to do it.

Mr. ROMMEL. We would like to be forehanded, Mr. McLaughlin. I should like to have an answer to the question before it is thrown at me. If I can work out and have the answer ready when the question is put to me. I would rather have it that way than be compelled to conduct an investigation in a hurry, and possibly get a wrong answer.

Mr. McLAUGHLIN of Michigan. I know, but assuming that you would be successful up there, was it your business to make it in the first place, was it the duty of the Federal Government to conduct it,

in view of the abundance of means in their own State, and it being strictly a local problem?

Mr. ROMMEL. I cannot agree with you that it is strictly a local problem. I contend that the problem applies to all of New England and to much of New York State as well. The matter of beef production there applies to that entire section, and somebody ought to be studying the problem. If it is not the function of the Department of Agriculture to study a problem covering such an extensive territory, I do not know whose function it is.

Mr. McLAUGHLIN of Michigan. It may be.

Mr. ROMMEL. Mr. Chairman, there is one point in this soft pork matter that I think that I should lay before the committee for its information, and that is that we have in this work the cooperation of the National Swine Growers' Association. The National Swine Growers' Association has agreed to furnish some of the hogs that we will use in this work; that is to say, hogs that we may get in North Carolina, Texas, or some other place away from Beltsville the National Swine Growers' Association has agreed to purchase, we to pay for the meat from those hogs that we actually use. It is an arrangement similar to the one that the bureau has with the Grove City Creamery in Pennsylvania, which enables us to conduct the work without calling on Congress for very large appropriations and without tying up Federal funds for an annual appropriation for use during just a few weeks or months, as the case may be.

The CHAIRMAN. What is that association made up of—farmers or shippers?

Mr. ROMMEL. They are breeders of hogs.

The CHAIRMAN. Of pure-bred hogs?

Mr. ROMMEL. Yes; very largely. It is represented largely by the membership in the pure-bred swine breeders' associations. I think that ought to be laid before the committee.

The CHAIRMAN. Some one called my attention to it to-day. Have you anything else?

Mr. ROMMEL. I have only one other point to make. In regard to that suggestion I made when Mr. Anderson objected to what he called subrosa statements, I simply want to call attention to this, that we are equipped at Beltsville now to carry on this soft-pork investigation as no other institution in the soft-pork territory is equipped. We can follow these hogs from the time they are born until the meat is put on the table. We can grow the pig, kill it, cure the meat, cook it if necessary, and lay it on the table. We will know absolutely from the time the hog was born exactly how the meat was handled. We are beholden to no one for any step in the investigation.

The CHAIRMAN. No reference is made to it here in the notes.

Mr. ROMMEL. No reference, because no increase is estimated for.

The CHAIRMAN. You simply make references where you ask for an increase?

Mr. ROMMEL. Yes; that is it.

The CHAIRMAN. Does the committee desire to know anything about the horse breeding?

Mr. ROMMEL. I can mention that if you wish it.

The CHAIRMAN. You might state briefly the number of stallions that you have?

Mr. ROMMEL. We have the horse-breeding work in progress at the Morgan horse farm and at the station in Wyoming. That has been in progress for a great many years. The work in Wyoming was formerly in Colorado, but that was transferred to Wyoming last summer.

The CHAIRMAN. You have no station in Colorado now?

Mr. ROMMEL. No, sir.

The CHAIRMAN. What is the highest price paid for stallions at the Colorado or Wyoming station?

Mr. ROMMEL. The highest price that we have paid?

The CHAIRMAN. The highest price paid for stallions by the Government?

Mr. ROMMEL. Three thousand five hundred dollars. That was a great many years ago.

The CHAIRMAN. You are positive about that?

Mr. ROMMEL. Surely. I bought them. Three thousand five hundred dollars was the most that we ever paid for a horse.

The CHAIRMAN. The highest price paid for any stallion owned by the Government at either of the stations?

Mr. ROMMEL. That is the highest price that I know of for stallions that we have had.

The CHAIRMAN. What was the highest price paid at the Morgan farm?

Mr. ROMMEL. We paid \$3,500 for one of the stallions at the Colorado station, and \$3,500 for one at the Morgan horse farm. Two thousand dollars was the highest price we ever paid for any of the horses that we bought for Army work. The average cost of horses for the Army work was approximately \$750.

The CHAIRMAN. I was told that the Government had paid \$18,000 for one of its horses.

Mr. ROMMEL. We have had nothing to do with anything like that.

The CHAIRMAN. There are no other horses except what you have in your charge owned by the Government?

Mr. ROMMEL. The Army has some horses, and the Indian Service has some horses, and so on, but I do not know of any branch of the Government that buys any horses for breeding purposes except the department. I do not think there is any other branch of the Government to be considered. I think you can safely say that the Government has never paid that sum.

The CHAIRMAN. The business is conducted as in the past?

Mr. ROMMEL. Yes; as in the past. The reason for conducting it is simply, particularly with reference to the Morgan horse, that here is an American horse that has in it endurance, feet, legs, and so on, features unexcelled in any other horse. But on account of its small size the breeding of these horses is declining. Small farmers are not breeding them extensively and wealthy men who go in for Morgans may dispose of their studs at any time. It would be a misfortune if the Morgan horse were allowed to die out. In order to prevent this the Government hopes to maintain a small permanent Morgan herd of horses.

The CHAIRMAN. How many Morgan horses are owned by the Government?

Mr. ROMMEL. We try to keep 25 brood mares. That makes in all between 65 and 75 head of horses, of both sexes.

Mr. McLAUGHLIN of Michigan. Do you find anybody interested in taking stock off your hands?

Mr. ROMMEL. Yes; they take a few. We have two stallions in North Carolina, and there are indications now that the Morgan horse may develop as a sire of cow ponies. My own candid opinion is that the Morgan horse is going to be a source of supply of small riding horses. He is never going to compete with the Ford car. If you get some more size in him he will do for handling hilly farms, and the stallions apparently are going to be of use as sires of first-class horses on the range.

Mr. McLAUGHLIN of Michigan. They are naturally small?

Mr. ROMMEL. Yes.

Mr. McLAUGHLIN of Michigan. Does the breeding of them tend to increase their size?

Mr. ROMMEL. We are increasing the size quite a little. Our mares will average around 1,100 pounds now. We are trying to get them up to 1,200 pounds. The stallion at the head of the stud weighs 1,200 pounds; in breeding condition somewhat less. He was shown last Saturday morning at the International Live-Stock Exposition at Chicago and won first in the class.

Mr. CANDLER. What character of horses have you in Wyoming?

Mr. ROMMEL. Mainly standard bred horses. We try to get them to average 1,300 to 1,400 pounds. That work was started under the name of the American carriage horse. We have dropped that name. What we are trying to do is to breed them to the needs of the range, where they will carry a man or pull a wagon. It is a light wagon or utility horse.

The CHAIRMAN. How much are you getting for the Morgan horses?

Mr. ROMMEL. We do not sell any. We have let them out to people who will take them and stand them.

The CHAIRMAN. So far you have not sold any?

Mr. ROMMEL. We have not sold any except culls.

The CHAIRMAN. What is the prevailing price?

Mr. ROMMEL. There is not much demand for Morgan horses. I priced a pair to a Japanese the other day at \$3,000 apiece. He wanted me to tell him how much he would have to pay for the best Morgan horses in the country, and that was my answer. That is the best answer I can give. It runs from there down.

The CHAIRMAN. Are they registered?

Mr. ROMMEL. Yes.

The CHAIRMAN. Are all that you own registered?

Mr. ROMMEL. Yes; our Morgan horses are all registered.

The CHAIRMAN. Is there anything else?

Mr. CANDLER. Have you any horses in Virginia, at Front Royal?

Mr. ROMMEL. Yes; there are about 25 stallions stationed at Front Royal.

Mr. CANDLER. You said that you let out some of those stallions, have stood them under certain regulations of the department?

Mr. ROMMEL. Yes.

Mr. CANDLER. What are they?

Mr. ROMMEL. The two horses that were sent to North Carolina were sent down under condition that the farmers taking them were vouched for by the State College of Agriculture, that they should pay all the expenses, and they agreed not to charge over a certain service fee.

Mr. CANDLER. They paid all the expenses for having them?

Mr. ROMMEL. Yes; we are subject to no expense whatever, and we reserve the right to bring the horses back at any time if it seems desirable to do so. In the case of the horses in the Army work, the probability is that hereafter they will be stood at a flat service fee.

The CHAIRMAN. You gave the number of stations, including the number of horses at each station?

Mr. ROMMEL. If I may I will supply that for the record later.

The CHAIRMAN. Is that all?

Mr. HARRISON. That is all.

(The material referred to follows:)

Breeding American utility horses, Buffalo, Wyo.

Num-ber.	Sex.	Age.	Breed.	Num-ber.	Sex.	Age.	Breed.
2.....	Stallions.....	Mature.....	Standard bred.	1.....	Mare.....	Mature.....	Standard bred.
1.....	do.....	3 years.....	Do.....	3.....	do.....	do.....	Saddle.
5.....	do.....	Mature.....	Utility.	12.....	do.....	do.....	Utility.
2.....	do.....	4 years.....	Do.....	3.....	do.....	3 years.....	Do.....
1.....	do.....	3 years.....	Do.....	3.....	do.....	2 years.....	Do.....
2.....	do.....	2 years.....	Do.....	3.....	do.....	Yearlings.....	Do.....
3.....	do.....	Weanlings.....	Do.....	3.....	do.....	Weanlings.....	Do.....

Total number horses, 44.

Production of horses for military purposes.

Location.	Number and breed.	Location.	Number and breed.
Middlebury, Vt.....	4 Morgan stallions.	Front Royal, Va....	9 thoroughbred stallions.
Front Royal, Va.....	2 saddle stallions.	Lexington, Ky.....	6 saddle stallions.
Do.....	2 standard-bred stallions.	Do.....	6 standard-bred stallions.

Total number stallions, 29.

Breeding Morgan horses, Morgan horse farm, Middlebury, Vt.

Age.	Stallions.	Mares.	Total.
Mature.....	15	16	21
4-year-olds.....	1	1	1
3-year-olds.....	1	4	4
2-year-olds.....	1	5	6
Yearlings.....	3	5	8
Weanlings.....	7	4	11
Total.....	16	35	51

1 Does not include the 4 stallions in the Army horse-breeding work at Middlebury, Vt.

STATEMENT OF DR. JOHN B. MOHLER, CHIEF OF THE BUREAU OF ANIMAL INDUSTRY, DEPARTMENT OF AGRICULTURE—Continued.

Dr. MOHLER. The next item I would like to discuss is number 65, on page 54, "for all necessary expenses for scientific investigations in diseases of animals, including the maintenance and improvement of

the bureau experiment station at Bethesda, Maryland." With this appropriation, we are working on rabies, glanders, forage poisoning, anthrax, swamp fever, poultry diseases, parasites, and various other troubles of live stock. We are asking for an appropriation of \$15,000 for the investigation of round worms of hogs. Recent investigations have shown the great importance of parasitic round worms to the hog industry. These parasites are responsible for many of the losses among young pigs, amounting to millions every year. At the present time we have no allotment for this investigation, and therefore it is a new item proposed for next year's estimates. There was a project for investigating round worms of hogs several years ago, but this was temporarily discontinued as a separate project and it should now be revived.

Such experimental work is now in progress on a small scale, but should be greatly extended so as to cover conditions in various parts of the country. From preliminary experiments, it appears possible that these losses can be prevented by comparatively simple measures, but it is necessary first to carry out the tests of methods under actual field conditions in four or five selected localities of the country before it will be possible to establish the best methods for the control of the parasites in question. Those parasites you all know as the long white round worm in the intestines of hogs. You see thousands of them every time you go to the packing house and our men have found an entirely new cycle in the life history of this round worm. Heretofore we have always thought the pigs drank stagnant water or ate contaminated feed, containing the little eggs of this parasite, and when they got into the intestines that those eggs hatched out and developed into this worm without leaving the intestines. Now the work of our laboratory men has shown that this old idea is erroneous. They have proved that after the eggs are hatched out the small larvæ crawl up into the liver, and are carried by the blood into the lungs, causing pneumonia, which produces a great number of deaths in young pigs.

You will find the little larvæ of the worms going through this cycle, which must take place in the lung. After they have become a little larger in the lung tissue, they crawl up into the trachea (the wind pipe), and when they reach the gullet are swallowed and go down to the intestines where they develop into these long white worms. Heretofore the trouble they produce in the lungs has been called hog cholera, and various other terms, but nobody really knew the effect of this larval stage of the intestinal worm on the health of pigs until our laboratory workers made this discovery.

The CHAIRMAN. Is it not a fact there are more losses from this worm than from hog cholera?

Dr. MOHLER. I would not want to say more, but I will say that there are very heavy losses from it.

Mr. LEE. Has there been any scientific investigation?

Dr. MOHLER. That is what we want with this \$15,000.

The CHAIRMAN. What do you propose to do?

Dr. MOHLER. To get out into the corn belt and establish four or five stations for practical studies under field conditions.

The CHAIRMAN. What are you going to do after you establish your stations?

Dr. MOHLER. We are going to cooperate with the producer of hogs, and get him to leave 50 per cent of the litters under the conditions he usually keeps his hogs. We will take the other 50 per cent and put them under what we term sanitary conditions, and administer treatment to see what the result will be. We want to establish a series of field experiments in four or five localities of the corn belt.

Mr. ANDERSON. Is this to be a continuing item?

Dr. MOHLER. I do not see any necessity for its being a continuing item after we find out the proper methods of prevention. It will be merely a question of education after we find a satisfactory method for eliminating the danger.

The CHAIRMAN. Do you propose to treat the hogs?

Dr. MOHLER. Yes; we are going to treat the hogs as well as handle them under sanitary conditions. We do not know all the things we are going to do yet, as they will be developed as the work proceeds; this is purely for an experimental investigation. We have one or two farmers cooperating with us in Illinois at the present time. They are standing all the expense and we want to duplicate that work in four or five other communities. As I say, we have already done a very limited amount of sanitary control work in this line that has produced very satisfactory results. It is more or less of a laboratory experiment now, and what we want to do is to extend it into the field to determine whether it is going to work out on a large scale or not.

The CHAIRMAN. Are there any remedies on the market?

Dr. MOHLER. There are all kinds of remedies, yes, sir, that are being sold. Some are fair and some are no good. But there is no true remedy to-day.

The CHAIRMAN. Do you propose to discover a new remedy?

Dr. MOHLER. I do not think there is going to be any discovery of that kind, because after the little larvæ get into the lung it is very hard to get rid of them in that structure. The need is to destroy the larva before it gets into the lung, or even before the egg reaches the intestinal tract.

The CHAIRMAN. How large is the worm?

Dr. MOHLER. The worm is 10 or 12 inches long, but the egg is microscopic. The little larvæ that develop, and which crawl up into the bile ducts and thence into the lung, are about a twelfth of an inch long, but they are so narrow that they are still microscopic. After they crawl up into the trachea and pass down the gullet into the intestines, they become mature and are then 10 or 12 inches long.

The CHAIRMAN. Something like a tape worm?

Dr. MOHLER. No; it is a round worm.

The CHAIRMAN. Similar to the worms children have?

Dr. MOHLER. Yes; probably the same thing as the long, white worm in babies.

The CHAIRMAN. Is it confined to the intestines of hogs only?

Dr. MOHLER. That is the thing we are interested in now. The results of the work we are trying to do may be applicable to the health of children. Round worms are not infrequent in babies, and in the human family the life cycle of the worm takes the same course.

Mr. McLAUGHLIN of Michigan. How does it first get into the hog?

Dr. MOHLER. It is swallowed in feed or water. The feed or the water becomes contaminated by the feces of an infested animal

carrying the female worm in the intestines. This female lays eggs, and those eggs pass out of the intestines in the feces and are deposited on the feed or in the water.

The CHAIRMAN. From cattle?

Dr. MOHLER. No; from hogs. Heretofore we thought the hog swallowed the eggs and the eggs passed into the intestines and hatched out and became adult without leaving the intestines, but our work shows that this is not the case. It hatches out, but does not develop in the intestines at that time. It travels up the bile ducts and goes into the lung and causes pneumonia, and it is at this stage where the losses are so great.

The CHAIRMAN. When did you develop that?

Dr. MOHLER. It was just published recently, about four months ago.

Mr. McKINLEY. You are furnishing that to all these county agents?

Dr. MOHLER. Yes, sir; but we have not enough information yet to decide which are the best and most practical preventive measures. It has been published in some scientific papers and news letters, but we want to get more practical results and then put it into the hands of the county agents or any other persons who can help handle this trouble.

Mr. RUBEY. How long have you been acquainted with this worm?

Dr. MOHLER. This worm has been known for over a hundred years, and has been important ever since parasites were studied.

Mr. RUBEY. How does it happen that we are just commencing to go after it?

Dr. MOHLER. It is the first time we knew the life cycle was as I have described it. Heretofore we have always considered the hog swallowed the egg and the egg went into the intestines and hatched out and matured, just like the tape worm. But it is more like the hook worm; we used to think the children down in the South swallowed the hook worm larva and it developed in the intestines directly; but now we know it penetrates through the healthy skin of the feet for instance, and after entering the circulation it reaches the lungs and then the intestines, like the hog worm. It is a wonderful requirement of nature that certain worms have to go through the other tissues to get to the place where they are usually found.

Mr. McLAUGHLIN of Michigan. The main thing is to keep it out of the hog?

Dr. MOHLER. That is it.

Mr. McLAUGHLIN of Michigan. But you can not stop its movement after it gets into the hog?

Dr. MOHLER. No, sir; when it gets into the lung it is impossible.

Mr. JACOWAY. When the worm gets in the lung, what percentage of the hogs die?

Dr. MOHLER. Over 10 per cent of them die.

Mr. JACOWAY. When it gets into the hogs, what percentage of the herd is infected by this worm?

Dr. MOHLER. Usually where they have a large infestation they all get it.

Mr. JACOWAY. And when it strikes one herd it is pretty likely to go through it?

Dr. MOHLER. It is.

The CHAIRMAN. Why could not this be done in connection with the hog-cholera work?

Dr. MOHLER. Because this is an experimental parasitic investigation and the other is the practical eradication of infectious disease. This investigation is being carried on in our zoological laboratory, and hog-cholera control is under one of our field divisions.

The CHAIRMAN. Are not the men assigned to the hog-cholera work capable of attending to this as well?

Dr. MOHLER. No, sir. This work is done by trained zoologists—men familiar with the life histories of various parasites. If we had placed the men now engaged on hog-cholera work on this investigation we would never have found it.

The CHAIRMAN. Could you not devote the funds for hog cholera to this work?

Dr. MOHLER. It is impossible to transfer our funds which are given to us specifically for hog cholera and apply them to the study of parasites.

The CHAIRMAN. We can change the language, if necessary.

Dr. MOHLER. I hope we will be given the \$15,000 extra. We need this \$15,000 for this specific purpose.

The CHAIRMAN. When you start at \$15,000 that means \$150,000 the next year, and it will be up in the millions before we get through with it.

Dr. MOHLER. I will guarantee we won't need any million dollars for this work. As I said to Mr. Anderson, this is not going to be a continuing appropriation. We started on this work before the war and stopped; we stopped all this kind of scientific investigations and got right down to brass tacks to study the things that were going to help win the war. Now we have taken it up again and have been carrying it on out of our general funds, and it has developed into a big thing. I would not be surprised but what the results these men will accomplish with this \$15,000 will do more to help the hog industry than any other one item outside of the hog-cholera item.

We are just beginning to learn about the great losses from this round worm.

The CHAIRMAN. The trouble is that this \$15,000 will be up in the millions in a very short time.

Dr. MOHLER. One of the scientists in the bureau published an article only a few months ago in the American Medical Association Journal, a leading journal of the physicians of the country, showing the importance of the work to human life, and I think our estimate of \$15,000 is very conservative. This is not the maximum amount they thought they could use; they could use a great deal more; but this is the conservative estimate of the department after considering all of the possibilities. I do not know any \$15,000 where we are going to show more results than from this particular item.

Mr. CANDLER. How long do you think it will take you to investigate it fully if you start this year and continue from time to time?

Dr. MOHLER. You know scientific investigations go in a very peculiar line. You can not foretell—you can not foresee what is going to happen. You have to keep studying the problems until definite results are obtained. It is just like our studies of hog

cholera; we worked on hog cholera for 20 years before we found a serum for the disease. We may find a prophylactic treatment for this disease at any time.

Mr. CANDLER. But you do not think it will require any large addition to the appropriation from year to year?

Dr. MOHLER. No, sir; it will not require any large addition to the appropriation from year to year. All we want to do to-day can be done in four or five different localities, and it will cost around \$3,000 in each locality to do the work.

Mr. JACOWAY. If we give you \$15,000 would you be willing to sign an affidavit that you will not want \$30,000 next year?

Dr. MOHLER. Yes, sir; I will be glad to do that. This is a very conservative estimate, I think, considering, as I said before, the importance and the potentialities of this work. And you know in your section the hog raiser has more trouble with worms than any other thing outside of hog cholera itself.

The CHAIRMAN. There is no question as to the merit of the proposition, but how are we going to handle it? It seems to me you might connect it with some other activity and do away with some of those overhead charges and continuing appropriations.

Dr. MOHLER. We are asking in this appropriation for \$141,450. That covers all of our investigations of animal diseases. This hog-cholera work you are speaking of is eradication work.

The CHAIRMAN. Why can you not draw on the general funds for the diseases there and use part of them for this purpose?

Mr. TINCHER. I like this kind of an appropriation, but what I do not like about it is the next one, for instance, containing new items for your work. The Government spends money to find out how to treat it and take care of it, and then I do not like, as the Chairman says, the \$1,000,000 we have to spend after that to force the fellow interested to use the treatment after you find it out for him. I do not think there is any occasion on earth for the Government to spend a dime now to persuade people to use the hog cholera treatment. You have the treatment; you have the vaccine that will prevent it; and anyone who is interested to the extent of owning hogs ought to have enough thrift, without the parental guidance of the Government, to use it.

Mr. HEFLIN. But, if he won't use it, the Government must use its power to suppress the disease.

The CHAIRMAN. What is the next item, Doctor?

Dr. MOHLER. The next item is an increase of \$4,000 in our animal-disease investigations, for developing and thoroughly testing a new method for blackleg immunization. This method gives promise of being a more effective agent against blackleg than the old powder form of vaccine which we are giving out at the present time. At present we have no appropriation specifically for this purpose.

I would like to say, during this last year the amount of blackleg vaccine distributed to stock owners was over 4,000,000 doses. Due to improved methods of immunization now in vogue throughout the country for blackleg, we have conducted experiments along these lines, and material progress has been made. Lack of sufficient help and, moreover, insufficient funds to conduct extensive experiments with large experimental animals has hampered the work so that it is not conclusive.

Definite mention should be made of the improved method of immunization by combining blackleg filtrate and killed prodigious cultures. These tests, of necessity, were conducted with small animals, yet the results obtained were so pronounced that it is most desirable to finish up this work on cattle, where it is felt the great advance of this method over the plain filtrates will be demonstrated. The new laboratory at Bethesda needs some rather expensive equipment to inaugurate the production and distribution of filtrates for the blackleg disease, and only when so equipped will it be possible to turn out the product in quantities for distribution to the cattlemen who are now requesting a better product than the powder form of vaccine. It is suggested that \$4,000 be made available for the production of blackleg filtrates for immunization purposes and for laboratory equipment to make this product of the highest potency.

Mr. McLAUGHLIN of Michigan. Speaking generally of these vaccines and serums, you recall that only a few years ago there was great difficulty in getting the pure stuff. The private manufacturers did not turn out the right kind of stuff, it was not reliable, and some of the States had difficulty. Your bureau had confidence in a stuff you made yourself, or which was made under your direction. What is the general situation now? Are they making all those different things better, and so on, and in sufficient quantity?

Dr. MOHLER. Yes, sir. You remember, Mr. Chairman, as the result of the act of Congress of 1913, the preparation of all these biological products for use on animals has been placed under the Secretary of Agriculture. The result has been we have supervision over all the establishments that prepare these serums, vaccines, and toxins for interstate commerce. And I think you will find the consensus of opinion of the users of those products is that the results have been very much more satisfactory.

Mr. McLAUGHLIN of Michigan. You have inspectors then at each one of the private places where any of this kind of stuff is made?

Dr. MOHLER. Yes, sir; we have them all under supervision. We do not have a man in each place. We have a man in every place where hog cholera serum is prepared, and he is given a territory contiguous to those serum plants in order that he may cover the firms that make tuberculin, vaccines, mallein, etc.

Mr. McLAUGHLIN of Michigan. How large an inspection force have you in these different factories?

Dr. MOHLER. That will come up in another item, but the number is about 94 at the present time.

Mr. JACOWAY. From this hog-cholera propaganda, or policy, that the Government has been engaged in for several years, what per cent of the herd do you imagine is preserved and kept from dying?

Dr. MOHLER. That will come under the hog-cholera item, but I may answer your question specifically in saying that this last year the losses from hog cholera have been reduced to 37 per thousand hogs, which is the lowest in 36 years and is principally the result of the cooperative work of the States and the Federal Government in this hog-cholera-eradication campaign. That will come up in another item.

Mr. TINCHER. I see you say, "Testing a new method of blackleg immunization."

Dr. MOHLER. Yes, sir.

Mr. TINCHER. The old method which was used made immune for one year? Now they have a method by which they are made immune for all time?

Dr. MOHLER. Yes.

Mr. TINCHER. Whose device is that new method? Is that the Government's method or some State's?

Dr. MOHLER. The original work was done by one of the biological companies in the East and then was taken up at your Kansas experiment station by two of the workers there.

Mr. TINCHER. There is no question about the success of that serum?

Dr. MOHLER. No, sir; it is very satisfactory. But we can not supply that, because we would have to have about 20,000 calves brought into Washington to make an aggressin similar to what is made at the Kansas Agricultural College.

Mr. TINCHER. Here is what I am getting at: Any man who wants to now, who owns a herd of cattle, can buy a vaccine?

Dr. MOHLER. Yes, sir.

Mr. TINCHER. And when they vaccinate a calf they can make it immune for life?

Dr. MOHLER. That is right.

Mr. TINCHER. That has been tested and found to be a success?

Dr. MOHLER. Yes, sir.

Mr. TINCHER. Now, you intend that the Government find a cheaper vaccine that will do that; is that the idea?

Dr. MOHLER. That is the idea, to make a vaccine here in Washington that will be just as efficacious and less difficult to prepare than the method of producing aggressin.

Mr. TINCHER. And you ground your work on what the Kansas Agricultural College has done?

Dr. MOHLER. Yes, sir; to some extent.

Mr. TINCHER. It costs now in the neighborhood of 30 cents to vaccinate the animal and to make him immune for life?

Dr. MOHLER. That is right.

Mr. TINCHER. But there is no question about the success of the vaccine?

Dr. MOHLER. It is quite satisfactory.

Mr. RUBEY. In the present method, they have to have some sort of an instrument?

Dr. MOHLER. Yes, sir.

Mr. RUBEY. And in the new method—

Dr. MOHLER. In the present method we have a powder. We make a suspension by grinding it up with a mortar and pestle, place it in a syringe, and inject it into the animal. We are working on this new solution now, and all we will need is a hypodermic syringe, which will do away with the mortar and pestle, grinding, filtering, etc.

Mr. McLAUGHLIN of Michigan. Do you require the services of a skilled man to demonstrate this remedy?

Dr. MOHLER. No; we are distributing these 4,000,000 doses to the stock raisers throughout the country, and they, as a rule, perform the operation themselves. All you have to do is to make a hypodermic injection; you do not have to take any readings or anything of that kind after the injection.

Mr. McLAUGHLIN of Michigan. You just give the animal a shot of it and let it go at that?

Dr. MOHLER. That is all that is necessary.

The CHAIRMAN. The treatment is similar to that for hog cholera?

Dr. MOHLER. Only it is simpler to apply, because in the treatment for hog cholera you give a serum and a virus, and the virus is a deadly product and may cause death if it is not handled properly. This aggrassin is absolutely inert and does not produce any disease; but will prevent the disease.

Mr. TINCHER. The treatment is the same as the old method, only it gives immunity for life instead of for one year?

Dr. MOHLER. That is it.

Mr. TINCHER. Your idea is with this appropriation to find something that can be manufactured cheaper and furnished the people cheaper?

Dr. MOHLER. We are not satisfied in giving out 4,000,000 doses of blackleg powder when some commercial concerns are selling other kinds of blackleg products which may be superior. And we can not possibly make blackleg aggrassin, because we would have to buy 20,000 calves, bring them to Washington, inoculate them, produce a blackleg swelling and then, after the calf dies, take the blackleg tissue and make the aggrassin. That is why it costs from 30 to 35 cents, because you have to use a calf every time you make from 500 to 1,200 doses of the aggrassin. The way we make the powder is to inoculate the calf, and after it dies, take the infected meat and dry it. We then make a dough of it by adding water, and bake it, and then grind it up into a powder. We get about 30,000 doses from every calf.

Mr. TINCHER. What is the object of the Government in keeping up the manufacture and free distribution of one-year immunity vaccine?

Dr. MOHLER. As far as I am concerned, there will be no objections to stopping it. It is on the same principle as giving away flower seeds the way we do every year.

Mr. TINCHER. There is now a preparation on the market that has been demonstrated a success.

Dr. MOHLER. Yes, sir.

Mr. TINCHER. And 90 per cent of it is sold by private companies?

Dr. MOHLER. Yes, sir.

Mr. TINCHER. By correspondence with your department, I could write you and get, for nothing, just as good a vaccine for cattle as I want, but my neighbor goes out and buys it.

Dr. MOHLER. It is routine work with us. We just inoculate the calves, produce blackleg meat, bake it, grind it up into a powder and send it to you. It is purely a routine procedure. You can buy blackleg vaccines in many towns in the West. We would be pleased to be relieved of the necessity of making that material, but as long as a Congressman asks for so many doses for his constituents, we are glad to supply it. I think our province is to make investigations in a fundamental way, to find a proper method, and then when we find it, to let commercial houses manufacture and sell it to the country.

Mr. McLAUGHLIN of Michigan. That is along my talk yesterday.

Dr. MOHLER. This is a different kind of a proposition from what we discussed yesterday. We have to be the leaders in eradication

and control work, and we have been the leaders in this blackleg vaccine work for twenty years. This was started in 1896, but we should be permitted to adopt new methods or stop.

Mr. McLAUGHLIN of Michigan. But you do not have to be leaders and laborers, too?

Dr. MOHLER. You know the tuberculin test we discussed yesterday takes considerable judgment outside of the manual labor involved.

Mr. TINCHER. How much of the appropriation is used for the free distribution of a vaccine of that kind?

Dr. MOHLER. We have no specific appropriation for this work now. It is a very inexpensive affair. We use several veterinarians part of the time on this work. We send one man out to the experiment station to-day and some other inspector next week. There are also two clerks employed for handling the mail, keeping records, etc. We are asking for a specific appropriation of \$4,000 for this particular project.

Mr. TINCHER. I think you ought to have the \$4,000, but I wonder if you can not take that out of the fund with which you have been furnishing free vaccine which has already been tested and of which everybody knows the merits?

Dr. MOHLER. No, we could not. You gentlemen gave us enough money, \$5,000, two or three years ago, before the war, to build a laboratory to develop this work. The laboratory was not built, for the reason that we did not want to do any building during the war period. Now, we have the laboratory there and we want to equip it. During that interval, we have been working in the laboratory piece-meal on various investigations of blackleg, and we have found that this combination of a blackleg filtrate with a prodigiousus germ, has produced very satisfactory results in the vaccination of the smaller animals.

Mr. TINCHER. What do you think about the policy of encouraging a man now to use the one-year vaccine from the standpoint of producing results?

Dr. MOHLER. It is not nearly as satisfactory as to make the animal immune for a longer period, of course.

Mr. TINCHER. It just occurred to me, if a man wrote to me and asked me to get him free vaccine for one year's immunity, if I was honest with him, I would write and tell him he did not want it.

Dr. MOHLER. If my friends wrote and asked me whether they should use blackleg powder or aggrassin, I think I would tell them what I thought of the powder and to buy the best they could get. I do not like to be in the position of distributing 4,000,000 doses of something that is not the best on the market, and I think we ought to receive funds to improve the product and find something which is most satisfactory.

Mr. ANDERSON. Why can you not stop it if you want to? Is there any law to prevent that?

Dr. MOHLER. Because you send in a request for the bureau to furnish John Jones, of Minnesota, with 100 doses of blackleg vaccine.

Mr. ANDERSON. No, I never did that. What do you want us to do; to put a limitation on this appropriation to the effect that it can no longer be done?

Dr. MOHLER. It would require a specific statement to the effect that hereafter none of this money shall be used for the distribution of blackleg vaccine. That is the only way I can see you can stop it. As long as there is no provision against it, we will have to comply with the requests of Congressmen.

Mr. McLAUGHLIN of Michigan. That is in this paragraph, is it?

Dr. MOHLER. Yes, sir.

Mr. WILSON. If that is true, why do you want to develop a new method?

Dr. MOHLER. Because, as I tell you, the old method is not as satisfactory as what we think this new method will be.

Mr. TINCHER. The old method makes a calf immune for one year. They use that because they can get it free. There is a new method which is absolutely satisfactory and a success and it makes them immune for life.

Mr. WILSON. If they know that method, why don't they use it?

Mr. TINCHER. The Government does not know that method; Kansas knows it. That is, the Government knows it, but it can not furnish it.

Dr. MOHLER. Of course, we know it, but the method of Kansas is the most expensive method and now we are trying to get the same results with a cheaper method.

The next item is for an increased allotment of \$1,650 to extend the investigations of stock poisoning by plants. Our present allotment is \$11,450, which does not allow for much work outside of that carried on in connection with livestock interests in the Western States. There are many problems in the East and in the South which should be investigated. From the South especially many complaints are made of the loss of live stock from presumably poisonous plants, with demands for investigation. These demands can not be met without additional appropriations. It is also desirable that more should be spent for investigation in the West, and in order that the results of the work can be made available to the stock people, it is important that it should be possible to respond with more freedom to requests for addresses at live-stock conventions. If these things are done it will be necessary to add to our present funds, and it would seem that a total appropriation should be made of not less than \$13,100. It perhaps should be stated that this sum will not permit any great enlargement of the work and that a much larger sum could readily be used.

Mr. ANDERSON. How long has this contagious abortion work been going on?

Dr. MOHLER. It has been going on for four years.

Mr. ANDERSON. It strikes me it has been going on as long as I have been on this committee and before that.

Dr. MOHLER. I think you will find it is about four years.

Mr. WILSON. Contagious abortion?

Dr. MOHLER. Yes; of cattle.

Mr. McLAUGHLIN of Michigan. Have you not learned all there is to know about that and how to treat it?

Dr. MOHLER. If you would attend some of these conventions and hear the discussions you would think there were as many ways to treat it as there are men who talk on it.

Mr. McLAUGHLIN of Michigan. It is the same old thing.

Dr. MOHLER. Yes; no great discovery of value for handling contagious abortion has been made like that for the elimination of ticks, the eradication of scabies, and the prevention of hog cholera. The present position of the investigation of abortion in cattle is about the same as the investigation of influenza in men. There has not been any panacea found as yet, and we are still investigating the whole problem.

Mr. TINCHER. Every manufacturing institution that manufactures serums pretends every spring they have an absolutely new one that will positively cure it; but they are all failures.

Dr. MOHLER. Yes; not one is past the experimental stage as yet. We are doing more to get control of contagious abortion by applying sanitary measures and by keeping heifers that become pregnant away from aborting cows, using the herd-management method, with sanitary measures. That has been the most satisfactory method that has developed thus far. There is a great conflict of opinion, you know, with regard to this disease. One investigator says the bull carries the disease to the cow and the other expert says it all comes from the mammary gland, that the infection enters through the teats of the cow; another fellow says the infection comes from contaminated feed. These investigations take a long time, because a cow has only one calf in the year and you can not rush these experiments when studying a disease like abortion.

Mr. TINCHER. There are lots of herds of cows in the United States, and that item would not cover the loss in cows next spring in one herd.

Dr. MOHLER. That is true.

Mr. TINCHER. If they have any prospect of finding a cure for abortion of cows, the appropriation does not amount to anything.

The CHAIRMAN. Are you making any progress on this?

Dr. MOHLER. Yes; we are. But, as I say, the work is slow; at most, you get only one line of results from one animal in one year, because we are working with the pregnant animal entirely. Conclusions are liable to be wrong when drawn from a few experiments, and therefore we try to have the work checked well.

The next item is No. 66, on page 56, "For investigating the disease of hog cholera and for its control or eradication." The old appropriation is for \$641,045, and we are asking for \$658,945, which is an actual increase of \$30,000. We are asking for this additional amount in order properly to carry out the provisions of the act requiring the supervision of the manufacture of viruses, serums, toxins, and analogous products. On the point brought up by Mr. Jacoway a few minutes ago, we have at the present time 95 plants under license. Last year we had only 88. This year we have 135 licenses issued, against 126 last year. So you will note a considerable increase of the number of plants which are now manufacturing biological products.

Mr. McLAUGHLIN of Michigan. Do you have any difficulty in making these plants comply with your regulations?

Dr. MOHLER. No, sir; we are having very good results in getting their cooperation.

Mr. McLAUGHLIN of Michigan. Do you see a marked improvement in the quality of their products?

Dr. MOHLER. Yes, sir; and also the users say the same thing. I just want to call attention to the fact that the quantity of anti-hog-cholera serum produced in the calendar year 1918 was 132.5 per cent more than the average for the last three previous years. It was also 111 per cent more than that produced in the preceding calendar year. The quantity produced from January to October, inclusive, in 1918, was 409,473,248 c. c., while for the same period in 1919, 582,662,674 c. c. were produced, or 42.2 per cent more than for the same period of the preceding year. During the fiscal year ending June 30, 1919, there was produced 148 per cent more anti-hog-cholera serum than for the preceding fiscal year. This large increase in the volume of products produced of course means that all details relating to inspection are likewise increased in volume. Such details include the inspection of animals presented for admission to licensed establishments, as well as each time before these animals are bled for serum or virus purposes. They also include the supervision of tests made to determine the purity and potency of the product produced. Numerous other details, including the supervision of all operations, are also included.

Mr. HUTCHINSON. What are the results of this increase; have you reduced hog cholera?

Dr. MOHLER. Yes, sir; to 37 deaths per 1,000 hogs.

Mr. HUTCHINSON. Have you the figures there?

Dr. MOHLER. Yes, sir. That is one of the reasons we want \$30,000 additional to supervise biological plants making hog-cholera vaccine, tuberculin, mallein, and these various other products, so that only the best serum and vaccine will be prepared.

The CHAIRMAN. What is the current value of the output of all these plants?

Dr. MOHLER. There were 582,662,674 cubic centimeters.

The CHAIRMAN. About how much per cubic centimeter?

Dr. MOHLER. I should think that the average price, taking wholesale and retail rates, would be about 1 cent a cubic centimeter. So you can figure it out quickly by putting your decimal point in front of the last two figures.

Mr. MCKINLEY. Between \$5,000,000 and \$6,000,000 worth.

Dr. MOHLER. Yes, sir.

Mr. TINCHER. This increase of the production of the serum, the demand for it, is accounted for by two reasons: One, the increased value of the hog?

Dr. MOHLER. That is right.

Mr. TINCHER. And another is the fact that the hog raiser and producer knows if he will vaccinate his pigs he can make them immune from cholera?

Dr. MOHLER. Yes, sir.

Mr. TINCHER. What do you think of this proposition: While its use is certainly commendable and it was a great thing for the Government to demonstrate and to find out for the producer and for the private manufacturers of serums, to investigate their plants and inspect them and make them comply with Government regulations in the manufacture of the serum, why is not that all the money now the Government ought to continue to spend on hog-cholera vaccine, just to make the private owners of the plants comply with the Government regulations, and buy the right kind of hogs for the purpose of

making it? Has not the experiment on the hog-cholera vaccine gone sufficiently far?

Dr. MOHLER. Yes, sir; we believe that is true, so far as the experiment on the use of the hog cholera serum is concerned. But it is like all of our infectious disease work, we are endeavoring to protect the Nation's live-stock industry. The organic act creating the Department of Agriculture states that its function is to develop and disseminate information along agricultural lines. I feel sure you could meet a lot of people in the next few years who had never heard anything about the hog cholera serum. And if you are going to protect the food industry of the country, the department will have to keep on educating the farmers and the hog raisers, for infectious diseases know nothing of State lines.

Mr. ANDERSON. What is the character of the eradication work you are doing now? Is it intensive work in a few counties, or is it scattered all over the country?

Dr. MOHLER. There has been no relaxation of effort, reduction in the field force, or in the scope of the work of the hog cholera eradication division since the termination of the war. The hog cholera activities continue to be carried on in 34 of the principal hog-raising States in cooperation with the State regulatory authorities and extension divisions of the State agricultural colleges. The efforts are State-wide, or as nearly so as the funds will permit. At present 143 veterinary inspectors are engaged in hog-cholera control work.

In 10 States, namely, California, Colorado, Montana, Louisiana, Kentucky, Nebraska, Ohio, South Dakota, South Carolina, and Tennessee, the hog-cholera control work has been consolidated with the other bureau animal-disease work and in each State the consolidated work has been placed under one directing head who divides his time, as necessary, among the different lines of work. It is the policy of the bureau to gradually extend its organization to other States with the view of reducing overhead expenses and increasing efficiency through creating more elasticity of the working force.

The results obtained during the fiscal year ended June 30, 1919, are gratifying. The number of outbreaks of cholera reported were 12,336; investigations made on farms where outbreaks of disease occurred, 51,022; post-mortems conducted on farms, 53,586; meetings held in hog-raising districts, 2,734; attendance at the meetings held in hog-raising districts, 78,584; inspectors' personal interviews with live-stock owners, 315,359; farm visits made, 93,512; miles traveled by bureau representatives, 2,029,519; hogs treated by bureau representative as demonstrations, 233,957; farms quarantined, 9,564; infected premises cleaned and disinfected, 4,382; number of hogs on farms January 1, 1918, 71,374,000; number of hogs on farms January 1, 1919, 75,587,000, and increased production during past year, 4,213,000.

The mortality of swine from all diseases was further reduced to 41.4 per 1,000, which is equivalent to about 37 per 1,000 from hog cholera, which is the lowest mortality that has been recorded in 36 years. The reports seem to indicate that during the present year even better results are being obtained. The men in the field are not directing their efforts so much to treating large numbers of hogs themselves as in teaching veterinary practitioners and others how

properly to make the diagnosis and administer the treatment; also in showing farmers through demonstrations, lectures, and personal interviews on the farm how they may protect themselves against losses from hog cholera and other swine diseases. This class of animal disease work is constantly growing in popularity, as evidenced by increased demands for extension of the service in States where it is being pursued, as well as to new States.

The experimental period of hog cholera work has been passed in most of the 34 States and it is gradually assuming a more intensive form. Although the bureau is confident that much good could be accomplished in the conservation of swine by increasing the funds, it feels that it is not justified in asking for an increase in the appropriation until the States make specific appropriations to cooperate with the bureau in this work on a 50-50 basis. On the other hand, it is believed that there should be no decrease in the appropriation, nor relaxation in the field activities, but that special consideration in the allotment of National Government funds should be given to those States that provide funds to cooperate with the bureau on an equal basis.

Mr. ANDERSON. You spoke of some 300,000 interviews with producers of the States. What do you mean by that?

Dr. MOHLER. That means our men have gone to the farms or had their meetings in different places, in schoolhouses, courthouses, at picnics, and places of that character, and have met these men and discussed the methods of hog cholera eradication.

Mr. ANDERSON. That means just conversations; it does not mean any demonstrations or anything of that sort?

Dr. MOHLER. No, sir. Demonstrations have been made on 233,000 hogs. These others are personal interviews with live-stock owners.

Mr. CANDLER. They discuss methods of procedure and it is the giving of information and securing of information from them?

Dr. MOHLER. Everything pertaining to the eradication of cholera.

Mr. JACOWAY. How many hogs have been saved by giving this treatment? do you know?

Dr. MOHLER. We have no way of determining that because we do not do any actual work except demonstrations. The only thing I can say as to the demonstration of the results is that the loss from hog cholera last year was the lowest for many years, namely, 37 out of every 1,000 hogs.

Mr. JACOWAY. I think your work is a great work, and I just wanted the record to disclose here for the benefit of others what good you are doing and how you spend this money. I am sure it is a good work, and I am in favor of it and very much interested.

Dr. MOHLER. Yesterday I spoke of our men having supervised the vaccination of over 640,000 hogs in public stockyards. That was probably three times more than was done the year before and twenty times more than was done in 1917. The only way we can get a line on the results is in the general benefit, so far as the loss reduction is concerned, throughout the entire country. And as I said before, those losses are lower last year than they have been for 36 years.

Mr. ANDERSON. Is not the loss relatively lower in the States in which you did the work than in the others?

Dr. MOHLER. Yes, sir; a great deal. We did most of the intensive work in the hog-raising States.

Mr. McLAUGHLIN of Michigan. In showing the value and result of your work, would it not be well for you to make a comparison with other years, showing what the percentages were in those other years? You say 37 was the lowest. If you give the percentage of loss in other years, that will show it.

Dr. MOHLER. I have a little diagram here. It shows the high points, and here is July 1, 1913, the highest loss in the history of the country, but you see it has come down lower and lower since then [indicating on the chart].

Mr. RUBEY. In 1913, we began this work?

Dr. MOHLER. Yes, sir.

Mr. McKINLEY. What was the per cent in 1913?

Dr. MOHLER. As I recall, it was about 118 hogs per 1,000.

Mr. McKINLEY. And now it is a third of that?

Dr. MOHLER. Yes, sir. From memory I think it is 118 deaths per thousand hogs. Last year it was 42, in 1917 it was 48, and in 1916 it was 66 per thousand.

Mr. ANDERSON. Is not this disease more or less an epidemic disease, and does it not fluctuate very greatly under normal conditions?

Dr. MOHLER. Yes, sir; it is just the same as influenza or any other epidemic.

Mr. ANDERSON. So that the reduction of the percentage of mortality would not be conclusive at all unless it covered a series of years?

Dr. MOHLER. It is not conclusive, but it is strong circumstantial evidence.

Mr. RUBEY. Now you have been working on this since 1913, and you have a yearly record of what has been accomplished and the losses that have been entailed, so that you have a series of years over which you can make comparisons?

Dr. MOHLER. Yes, sir.

Mr. RUBEY. And making your comparison over those series of years, what is your opinion as to this work?

Dr. MOHLER. I believe that the cooperative work of the bureau with the various State and county agencies, and with the farmers themselves, has been largely responsible for holding this disease in check, and that the work should be continued along present lines. Six or eight years ago we could see hog cholera start on a man's farm and from that primary seat of infection scatter around to all the farms in that county and even to adjacent counties and States. Now, I know of a number of States last year that had primary outbreaks on an individual farm, but the outbreak was stopped right there on that farm and not one case of secondary infection occurred on the adjacent farms. I consider that not a case of Providence preventing the epizootic spread of the disease, but I believe it was due entirely to the educational work our cooperating forces are doing. They go right to the farm as soon as they hear of an outbreak, and when that outbreak stops on the first farm in one case after another it certainly is not the result of anything else but the amount of work the inspectors perform with the other farmers in the locality to keep it from spreading to these secondary points. And the holding of the

disease to the primary farm, where the infection first occurred, has been accomplished time and time again in the last two years.

Mr. ANDERSON. I do not want to detract from the value of anything you are doing, but I do not think it is necessary to give the Department of Agriculture credit for increasing the food supply of the country every time it wins.

Dr. MOHLER. No; I would not want to do that, but I am telling you why I consider this work is producing these fine results.

Mr. TINCHER. Is there any locality in the United States where the hog producer can afford to take any chances on cholera?

Dr. MOHLER. Yes, in cases like the gentleman cited yesterday, in Michigan, New York, and Pennsylvania, and places where there is very little hog cholera and little likelihood of having any hog cholera. It would be foolish for him to use the serum and virus on his hogs unless there is some outbreak in the vicinity of his herd. But in your State it is a different proposition.

Mr. TINCHER. You spoke there of vaccinating so many hogs at the stockyard markets.

Dr. MOHLER. Yes, sir.

Mr. TINCHER. There is no market in the United States where you can afford to take stock hogs out without that?

Dr. MOHLER. None at all.

Mr. TINCHER. Every man who purchases stock hogs in the open market knows he can not afford to remove them without vaccinating them against cholera?

Dr. MOHLER. That is true.

Mr. TINCHER. The vaccine is manufactured in all those market centers, is it not?

Dr. MOHLER. True.

Mr. TINCHER. By private companies?

Dr. MOHLER. Yes, sir.

Mr. TINCHER. And those companies are under Government supervision by your inspectors?

Dr. MOHLER. All of them are that do an interstate business.

Mr. TINCHER. And if a man goes to the open market and buys stock hogs he wants to get the serum there to vaccinate them before he takes the hogs away from that market, and they do that at their own expense?

Dr. MOHLER. Yes, sir.

Mr. TINCHER. And the function of the Government is to see that the man who manufactures that serum has complied with the regulations and that the man gets a good serum. There is nothing complicated about administering the serum?

Dr. MOHLER. No. They have local men doing that in all these stockyards and our men are present to supervise the work and see that it is done properly. That is all we do. For instance, we do not approve of a man vaccinating a hog which has a temperature above a certain point, 104, because that animal is apt to be coming down with cholera and if he is vaccinated he will probably die.

Mr. TINCHER. There is no vaccine that is a cure for cholera?

Dr. MOHLER. No, sir.

Mr. TINCHER. It is purely a preventive?

Dr. MOHLER. Purely a preventive; yes, sir.

Mr. TINCHER. As you say, in my locality the only safe thing to do when you purchase a hog is to vaccinate him.

Dr. MOHLER. That is true. But you can understand in States where they have little cholera present, where there is very little source of exposure, it is not necessary to vaccinate until hog cholera comes somewhere in the vicinity.

Mr. TINCHER. I see you have in your report some method of quarantining farms?

Dr. MOHLER. Yes, sir.

Mr. TINCHER. That method would be a little inconsistent with a vaccine as a preventive treatment.

Dr. MOHLER. That is where hogs have contracted cholera and are dying on the farm. We are cooperating with the State. We can not quarantine a farm, but some of our men hold State positions, as State assistants, and they are working as State representatives when they quarantine these farms, so that the animals will be buried or burned and the premises disinfected.

Mr. TINCHER. The Government's policy or the Government's theory, or the theory of your department, rather, is, instead of the neighbor insisting on there being a quarantine on that farm, he should use the vaccine?

Dr. MOHLER. That is our judgment; and until he does vaccinate his well hogs and burns or buries the carcasses of the dead hogs they will not allow a fellow farmer to come there to visit him, nor is he allowed to visit others. That is the quarantine; the farm is only quantined until the dead animals are disposed of and the premises disinfected.

Mr. JACOWAY. Dogs will carry it?

Dr. MOHLER. Yes.

Mr. JACOWAY. And birds will carry it?

Dr. MOHLER. Yes.

Mr. JACOWAY. How can you prevent that?

Dr. MOHLER. That is one of the serious difficulties we try to overcome.

Mr. TINCHER. You do not attempt to prevent that?

Dr. MOHLER. No, sir. Once in a while the farmers will try to shoot the pigeons from the neighboring farm or they will shoot their own. But we can not control the birds of the air. The only way to prevent whatever infection they carry from doing serious damage is to have your hogs protected by vaccination.

Mr. HUTCHINSON. The person who gathers up garbage in the cities and feeds it to his hogs—I notice they have more trouble from cholera with those people than any place else. That is one of the causes?

Dr. MOHLER. That is one of the causes. That has been worked out very nicely in Canada. They found a great many outbreaks were the result of garbage being fed to the hogs.

Mr. TINCHER. No man has a right to produce hogs by feeding garbage without immunizing the hogs.

Dr. MOHLER. No, sir; that is the solution for it. If a man wants to feed garbage to his hogs, he ought to buy hog cholera serum and vaccinate the hogs to be fed.

Mr. ANDERSON. The regulations of serums and toxins relates to other serums and toxins than for hog cholera, does it not?

Dr. MOHLER. Yes, sir; it relates to mallein, tuberculin, abortion vaccines, hemorrhagic septicemia vaccines, etc.

Mr. ANDERSON. The reason I ask the question is because it struck me that the first proviso in this item was rather out of place and, in view of the fact that this proviso covers a whole lot of things other than hog cholera, it ought to be in a separate item.

Dr. MOHLER. The point there, Mr. Anderson, is the greatest volume of the work is done on the hog cholera serum. We have a large number of serum plants under supervision which make only hog cholera serum, 58 this year, while only 30 plants are making solely biological products like mallein, bacterins, and tuberculin. This last group is larger in the quantity of products handled, but smaller in the number of plants.

The next item will be found on page 58, item 67, "for all necessary expenses for the investigation, treatment, and eradication of dourine." I only want to say a few words about that. There has been no request for an increase in the appropriation, but I wish to refer to the progress that has been made.

In the areas in the Central West and Northwest, where work on dourine eradication has been carried on for a number of years, gratifying progress toward the final elimination of the disease has been made. In the State of Iowa eradication has been entirely completed, and in the States of Wyoming, Nebraska, and North Dakota it has been practically completed. While reactors to the test in considerable numbers were found during the past season in Montana and South Dakota, these numbers form a very small percentage of the total number of animals tested in those States. It will be necessary, however, to make further tests of animals in certain regions during the coming season which runs from about April 1 to November 1, and which includes four months of the fiscal year 1921.

In the States of Arizona and New Mexico, where the work was much more recently begun, a large amount of work remains to be done. A comprehensive campaign has been conducted during the past season, during which large numbers of animals were tested, and a high percentage of reactors found, especially in Arizona. Fairly good success was had in accomplishing the destruction of reacting animals. Owing to the nature of the country, however, the great distances from the railroads to the horse ranges, and the fact that most of the animals involved are owned by Indians living under a tribal form of government, the work is carried on under the greatest difficulties, and, as field transportation has to be used extensively, it is relatively quite expensive.

If the advantage gained by the intensive work carried on during the past seasons is not to be lost, it is important that such work be continued. It is hoped that with another season's work the disease will be practically eliminated from the Central and Northwest, but it will be necessary to continue for some time in the two southwestern States named.

With reference to the work done during this period, there were 8,523 horses tested in Montana, with 173 reactors, or 2 per cent. In North Dakota there were 1,372 tested, nine reactors, .6 per cent. In South Dakota, 16,172 horses tested, 105 reactors, .6 per cent. In Wyoming, 830 horses tested, 16 reactors, 1.9 per cent. In Arizona,

14,701 horses tested, with 761 reactors, 5.17 per cent. That is the largest percent of all the States where this disease exists. In New Mexico, there were 3,429 horses tested, with 54 reactors, the per cent being 1.57. That makes a total of 45,027 horses tested, with 1,118 reactors, and an average of 2.4 per cent.

Mr. McLAUGHLIN of Michigan. Have you the percentages for other years, showing your progress? Will you put that in the record?

Dr. MOHLER. Yes, sir. The percentage for the last three years has been a little under 3 per cent. In 1914, 2,550 cases were found; in 1915, 1,515 cases; in 1916, 1,400 cases; in 1917, 1,225 cases; in 1918, 1,018 cases.

Mr. McLAUGHLIN of Michigan. When you find a reactor, what do you do?

Dr. MOHLER. Have him slaughtered, and pay an indemnity of not to exceed \$100 as the Government's share.

Mr. McLAUGHLIN of Michigan. You have not found any way of treating it?

Dr. MOHLER. No, sir.

Mr. McLAUGHLIN of Michigan. You find it principally in stallions?

Dr. MOHLER. Principally in stallions and breeding mares. It is called horse syphilis and only occurs in breeding animals.

Mr. McLAUGHLIN of Michigan. It is spread by the stallions?

Dr. MOHLER. Yes, sir. Our results this year would be a great deal better if it were not for the numerous nests of disease we found on the Indian reservations in Arizona. Out of 14,701 animals tested in that State we found 5.17 per cent reactors.

Mr. McLAUGHLIN of Michigan. Do the Indians raise the kind of horse that is sold elsewhere than where it is raised?

Dr. MOHLER. No; and they have hundreds of horses for each Indian, where they only need to have four or five. We hoped when this meat inspection for horses was established they would dispose of a lot of horses for slaughter, and no doubt that will occur before another year rolls around; but there has scarcely been time since the first of July, the date that law went into effect.

Mr. McLAUGHLIN of Michigan. The horses from the Indian reservations are not apt to reach the other sections of the country?

Dr. MOHLER. No, sir.

Mr. McLAUGHLIN of Michigan. And there is not likely to be much communication of the disease from that source?

Dr. MOHLER. No, sir; and those sections are quarantined by the States so there is no possibility of the horses getting away. Our greatest difficulty is to get the Indians to round them up. We have to go there in the round-up season, and it is very hilly ground, so you never catch 100 per cent of the animals you go after. If you leave one infected stallion behind he may serve fifty or 60 mares during the next season, and the next year you find all of those mares with the disease.

The CHAIRMAN. We started the appropriation for this purpose in 1918 with the view of stamping it out and solving the problem quickly.

Dr. MOHLER. Yes, sir; \$100,000 was first appropriated. And last year we asked to have a reduction made of \$8,000, and that was done.

The CHAIRMAN. You started with \$99,000, and now we are only down to \$85,000.

Dr. MOHLER. Yes, sir.

The CHAIRMAN. I thought you might reduce this materially from year to year, and that by this time we would not be called upon for an appropriation.

Dr. MOHLER. We could have expected a reduction had it not been for these numerous nests of disease found in Arizona. We have got some hard work before us there and we would scarcely expect a further reduction of this appropriation if we are to get through with this disease in the next few years.

The CHAIRMAN. It is absolutely necessary to have the full amount?

Dr. MOHLER. Yes, sir.

Mr. McLAUGHLIN of Michigan. Does that disease prevail in Mexico?

Dr. MOHLER. In old Mexico?

Mr. McLAUGHLIN of Michigan. Yes.

Dr. MOHLER. No, sir; not so far as we know.

Mr. McLAUGHLIN of Michigan. Not so far as you know?

Dr. MOHLER. You know live-stock sanitary work down there is on a very low level; we do not know much about what they have down there except by carefully inspecting the animals which are imported into this country.

The CHAIRMAN. You want to give special attention to Montana and what other State?

Dr. MOHLER. We want to give special attention to Arizona and New Mexico. Montana only had 173 cases, and North Dakota only nine.

Mr. LEE. Have you made good progress in those States?

Dr. MOHLER. Yes, sir. As I said before, we will clean up most of the Northwestern States in another year's work. If we could go into those States and round up 100 per cent of the horses, we could clean up all of them in one season, but we never get a round-up of 100 per cent; and if we leave one stallion behind you have 50 or 60 mares, or more, served by him, which will be diseased the next year.

Mr. McLAUGHLIN of Michigan. And the foals, too?

Dr. MOHLER. Yes, sir; very often.

Mr. PURNELL. Have you found any of the disease farther east than—

Dr. MOHLER. We have never found it farther east than Illinois. We had an outbreak in Illinois in 1888, and then it was carried by one stallion from Bloomington, Ill., to Rushville, Nebr., and thence to the Pine Ridge Reservation, where it took 14 to 15 years to eradicate. That country is clean now. It broke out again in Montana, and in those days you had to use the naked eye to discover the disease. To-day, as a result of the investigational work done by the bureau we have a blood test, which we use on about 45,000 samples yearly. Our inspectors take probably an ounce of the blood of those horses to be tested, and the samples come into the Washington laboratory, where inside of 12 hours we can tell whether the animals are infected or not. If we had the old method, we would have to wait until the disease developed clinical symptoms, whereas now we catch most of the cases in the earliest or incipient stage.

Mr. McLAUGHLIN of Michigan. Is that the way they test the animal now?

Dr. MOHLER. Yes, sir.

Mr. McLAUGHLIN of Michigan. And you kill the animal if the test discloses the presence of the disease?

Dr. MOHLER. Yes, sir. It usually shows clinically in the genitals of the mares and stallions, sometimes only in the testicles of the horse, but if we have any doubt about the diagnosis, we make a blood test, and if from the blood test we detect the disease, the animal is killed.

Mr. McLAUGHLIN of Michigan. Do you make a post-mortem examination to see if your test is verified?

Dr. MOHLER. Yes, sir. This test is very similar to the Wassermann reaction in syphilis of man.

The CHAIRMAN. This is a 50-50 proposition?

Dr. MOHLER. Yes, sir.

The CHAIRMAN. And it is only done by voluntary arrangement?

Dr. MOHLER. Yes, sir; and we do not pay more than \$100 for any animal.

The CHAIRMAN. \$100 is paid by the Government or by the two?

Dr. MOHLER. No, sir; \$100 is the maximum paid by ourselves.

The CHAIRMAN. That is, \$200 a head?

Dr. MOHLER. Some States pay a great deal more. North Dakota pays a very high price in some cases, because they have got a good many pure-bred Percheron horses in North Dakota.

The CHAIRMAN. Is that an arbitrary figure?

Dr. MOHLER. Yes, sir; it is an arbitrary figure.

The CHAIRMAN. You enter into an agreement?

Dr. MOHLER. Yes, sir.

The CHAIRMAN. You have no trouble about that?

Dr. MOHLER. No, sir; no trouble at all. Of course, we do not have to use that maximum for the mustangs and bronchos; we can get along with from \$25 to \$40 in the appraisements there.

The CHAIRMAN. What is the next item?

Dr. MOHLER. The next item is number 69, on page 60, "For additional expenses in carrying out the provisions of the meat-inspection act of June 30, 1906." This item is the one that carries a supplementary appropriation for the meat-inspection service in addition to the regular appropriation of \$3,000,000 provided in the acts of June 30, 1906. What we ask for here is to have the phrase inserted, "including the purchase of tags, labels, stamps, and certificates printed in course of manufacture," the idea being to obtain permission to purchase these labels, certificates, tags, and stamps in the open market instead of having to go to the Government Printing Office. We have always found it took a great deal of time to get these supplies from the Government Printing Office, and their bid was always higher than the outside bids had been. We think it is desirable to be given the privilege of buying these things in the open market, and the language suggested is identical to that giving similar authority to the Treasury Department for buying like supplies.

Mr. ANDERSON. What do the words "printed in course of manufacture" mean?

Dr. MOHLER. Take, for example, the Denison tag which contains the words "U. S. Retained" or "U. S. Condemned," for our meat-inspection work. These words are printed on the tags in course of their manufacture. I have never seen them make those tags; but

you know the Denison tag, do you not, Mr. Anderson? We require the words "U. S. Retained" to be printed on certain kinds of these tags, and other tags are marked "U. S. Condemned," and they are all printed in the course of manufacture. They are printed before they put in the eyelets on one end of the tags and before they tie the strings to them.

Mr. RUBEY. You mean while they are manufacturing these tags, the printing is put in there?

Dr. MOHLER. Yes, sir; the printing occurs before the tag is completed, before the eyelet is put in and the serial number given.

Mr. McLAUGHLIN of Michigan. Why don't you make the packers pay for these tags; they are put on their stuff?

Dr. MOHLER. Yes; but it is our only means of identification. If we allow the packers to control the retained tags and the condemned tags, it would be the worst thing possible. Those are supplies we want to keep under our own lock and key.

Mr. McLAUGHLIN of Michigan. You could have the control of them; they would simply comply with your order.

Dr. MOHLER. I think anything that has to do with the retention or condemnation of meat ought to be absolutely in the hands of our inspectors without any control by the packers in any sense of the word.

Mr. McKINLEY. How much do these tags cost per year?

Dr. MOHLER. \$5,000 or \$6,000. It is a very small amount. This new language is added in view of the difficulty we have in obtaining promptly supplies of this character from the Government Printing Office, which apparently is not properly equipped for this sort of manufacture. The language of recent enactments relative to printing, strictly construed, prevents the departments from securing such supplies from any other source than the Government Printing Office, except with the previous consent of the Joint Committee on Printing. We have had the consent of the Joint Committee on Printing to get this work done on the outside up to the present time, but what we want to do is to have it in the law so that every time we want \$1,000 worth of retained tags, stamps, or labels we won't have to go to the Joint Committee on Printing for permission.

Mr. McLAUGHLIN of Michigan. How much does it cost to get a supply at the printing shops?

Dr. MOHLER. Less than half the cost at the Government Printing Office. They are not fitted up with the machines for putting the eyelets and things of that kind in the tags, like the Denison people and some of these other manufacturers.

Mr. McKINLEY. Is that true of all things?

Dr. MOHLER. No, sir; not at all.

Mr. McKINLEY. How does it compare with the open market?

Dr. MOHLER. I would not want to say, but I know the open market is cheaper on special lines.

Mr. JACOWAY. But on this item, if you were allowed to go in the open market, you would save between \$2,500 and \$3,000?

Dr. MOHLER. Yes, sir; we could.

Mr. ANDERSON. I notice you have eliminated some of the language of the bill of last year. The question in my mind is whether the language which is now left is sufficient to cover equine investigations?

Dr. MOHLER. We have asked for the elimination of that particular phraseology, because we consider it unnecessary.

Mr. ANDERSON. The legislative part of it is unnecessary, but I am afraid there is no authority in the language left to carry on the equine inspection or to pay for equine inspection.

Dr. MOHLER. This suggestion was brought up by the legal members of the department, and they considered it merely complicated the accounting and was unnecessary. I do not recall the language in last year's bill about equine inspection.

Mr. HARRISON. Perhaps the situation Mr. Anderson has in mind would be met by leaving out the words "by the act of March 4, 1907."

Mr. ANDERSON. Or by including the act of last year.

Mr. HARRISON. The simplest way would be to strike out "by the act of March 4, 1907."

Mr. ANDERSON. My impression is that this equine provision you had last year is not specifically indicated as an amendment of the meat-inspection act. But we can go into that matter later on.

Mr. RUBEY. How many applications have you had for the use of this horse-meat inspection?

Dr. MOHLER. We have had about five or six applications. There is one plant now in Cincinnati where we are inspecting horse meat, and they are shipping all their products to Holland.

Mr. McLAUGHLIN of Michigan. It is all shipped abroad, is it not?

Dr. MOHLER. Most of it; yes, sir. At the present time there are a number of firms that have requested information, and are getting ready to start inspection. The Hudson Bay Co. is interested in two or three plants in the West, and their representatives are now in France, Holland, and Belgium getting orders for, I think, 30,000 pounds a week—quite a large supply. The trouble now is the rate of exchange. That is holding up this business. They are going to see if they can not supply the horse meat from this country and have those countries supply olive oil or other product laid down to them in New York. They are trying to provide for a system of bartering instead of an outright sale. The rate of exchange is stopping this horse-meat business more than anything else.

Mr. McLAUGHLIN of Michigan. That applies to everything?

Dr. MOHLER. Yes, sir. The Hudson Bay Co. is deeply interested, and they are contracting with plants for this purpose.

Mr. CANDLER. Horse meat is used only for export; it is not used in this country, at all?

Dr. MOHLER. It is used a little in this country. They have a Federal plant at Cincinnati, and there are local plants at St. Louis, Milwaukee, Portland, Oreg., etc., where they sell horse meat locally.

Mr. WILSON. How do you like it?

Dr. MOHLER. I have eaten some samples of dried beef and Salami sausage, produced in Wisconsin, and I had hoped to be able to bring some samples of them here, but Mr. Chappel, who promised these supplies, is now in France getting orders.

Mr. RUBEY. It might be a good idea to furnish us with some of the meat, and not to let us know what it is until after we have tried it.

Dr. MOHLER. You would not hesitate to eat it after you had tasted a sample, because it is very good.

Mr. McLAUGHLIN of Michigan. Is that Hudson Bay Co. a Canadian company?

Dr. MOHLER. It is the old Hudson Bay Co. of Cooper's tales. Their head office is at New York City.

Mr. JACOWAY. What is this horse meat worth a pound?

Dr. MOHLER. In New York, when they were selling it a year or so ago, it was 15 and 18 cents a pound. Horse steaks were selling for 18 cents.

The CHAIRMAN. How does the price compare with other meat?

Dr. MOHLER. At that time it was over 50 per cent cheaper than beef.

The CHAIRMAN. How does the price of the horse compare with the price of cattle?

Dr. MOHLER. I met a number of Montana horsemen at the international convention in Chicago, last week, and they were bemoaning the fact that these horse-meat dealers were not taking their horses; that the horses were in a sleek condition, and they were willing to sell a number of them at \$25 a head. They were afraid, if they had to winter them, that next spring they would be very thin, and these horsemen were very much upset about the failure of the exporters to take the horses off their hands.

The CHAIRMAN. They have a number of plants slaughtering for local consumption?

Dr. MOHLER. Yes, about five or six; but there is only one (Cincinnati) that has Federal inspection.

The CHAIRMAN. There is one in Milwaukee?

Dr. MOHLER. It is not under Federal inspection.

The CHAIRMAN. Are there any under Federal inspection?

Dr. MOHLER. In Cincinnati; yes, sir.

Mr. JACOWAY. Is it not about 200 per cent cheaper than beef?

Dr. MOHLER. At the time I mention, beef was selling about 40 cents and they were selling horse steaks for 18 cents.

Mr. JACOWAY. They are not selling here for that.

Dr. MOHLER. Not here. I am talking about New York City now—Brooklyn.

Mr. JACOWAY. I do not think they were in New York City. I think you are in error about it.

Dr. MOHLER. I think Mr. Rommel had one of our men go up there, and was not that his report?

Mr. ROMMEL. Yes.

Mr. TINCHER. He must have gotten a wholesale price on beef.

Dr. MOHLER. This was a year or a year and a half ago. This inspection requirement has been effective only since July, you know, and none of those fellows could have inspection unless they adopted our requirements. This firm in Brooklyn I am speaking of has not met all the requirements.

Mr. TINCHER. Is there any requirement about the condition of the horse?

Dr. MOHLER. Oh, yes. He has to be inspected, antemortem and post-mortem both, the same as the cow, sheep, and hog.

Mr. JACOWAY. You can not get a steak for 50 cents or a roast for 50 cents here and have not been able to do it in the last year and a half. And, as I understand it, the price here is somewhat parallel to the price in New York City.

Dr. MOHLER. I have paid as high as 62 cents for a steak here and as low as 40 cents, in the last year and a half.

Mr. JACOWAY. That would make your percentage wrong. You say about 50 per cent; that would be 150 per cent.

Dr. MOHLER. We are figuring differently. I am using the price of beefsteak as a 100 per cent basis, while you are taking the price of horse steak for your basis of 100 per cent.

Mr. CANDLER. All this horse meat is required to be stamped?

Dr. MOHLER. Yes, sir; with a green branding ink.

Mr. McLAUGHLIN of Michigan. Do you know anything about the whale meat supply and whether it is used in this country?

Dr. MOHLER. No, sir; I do not. The Bureau of Chemistry has been doing some work with the fish foods. We have not been doing anything on that at all.

The CHAIRMAN. Is there anything else?

ERADICATION OF FOOT-AND-MOUTH DISEASE.

Dr. MOHLER. There is only one other item that comes under the Bureau of Animal Industry, and that is the continuation of the insurance fund for a possible outbreak of foot-and-mouth disease. That is in your bound copy, over in the back of the book.

Mr. HARRISON. Page 281, item No. 8.

Dr. MOHLER. Comparatively small sums have been expended in maintaining a vigilant lookout for symptoms of foot-and-mouth disease among all susceptible animals received at public stock markets. At all the central markets where the disease has existed and in trade channels through which it has been spread in previous outbreaks experienced veterinarians are stationed especially for work under this project. The number of such employees has been increased during the past year because of the possibility of infection being introduced through the return of American forces and material from allied countries in Europe in which the disease prevails. Extra precautions have been and are being taken because of this possibility. All suspicious cases of disease among susceptible animals anywhere in the United States, which come to the knowledge of the bureau, are promptly investigated.

In this connection, I want to say that at the present time there is more foot-and-mouth disease in southern France, Italy, Switzerland, Belgium, Holland, and England than has existed for the last 15 years.

Mr. McLAUGHLIN of Michigan. Is there any alarm felt about it in this country; have there been any scares?

Dr. MOHLER. There have been some scares, but investigations have proved them without any foundation.

Mr. PURNELL. This is an outgrowth of the war?

Dr. MOHLER. Yes, sir. These outbreaks in England have been accounted for by the sanitary authorities of Great Britain largely as a result of the return of the soldiers from France who bring in the infection.

Mr. PURNELL. How can they transmit that?

Dr. MOHLER. They bring it home on their shoes, clothing, gloves, or on souvenirs they pick up around the barnyards, on helmets, and things of that kind; it is impossible to say what particular thing, but all those things are potential means of carrying the disease from France to England.

Mr. McLAUGHLIN of Michigan. And you are afraid of that?

Dr. MOHLER. Yes, sir.

Mr. McLAUGHLIN of Michigan. Do you know of any cases where the infection has come into this country in that way?

Dr. MOHLER. No, sir.

Mr. McLAUGHLIN of Michigan. But the men have been back long enough now so that if they brought any of it with them, it would show up by now?

Dr. MOHLER. Yes. I think the cootie helped as much as anything else in preventing us from having foot-and-mouth virus brought in, because the soldiers were disinfected before they embarked on the other side, their clothing was taken off, disinfected and washed in antiseptic solution, and then when they got on this side they were treated in the same way. I think the fact that they were so well disinfected to get rid of the cootie, helped us considerably in not having any outbreak from the virus of the foot-and-mouth disease that might have been carried on their clothing and other materials.

Mr. PURNELL. That is what I mean. What I was trying to ascertain was whether or not there was any evidence of that disease; whether you found any evidence of that disease in this country and had traced it to the soldiers.

Dr. MOHLER. No. There has been no case of foot-and-mouth disease in this country since the last outbreak, which was eradicated in the spring of 1916.

Mr. McLAUGHLIN of Michigan. You spoke of the increase in France and England. What is the percentage of increase; has it been large?

Dr. MOHLER. In the latest French magazines, I see that the minister of agriculture of France has pronounced it as an epizootic in southern France, in the Marseille section, and I saw a letter from Sir Stewart Stockman, of Great Britain, a few weeks ago, saying it was quite serious in England on account of the mysterious occurrence of those outbreaks.

Mr. McLAUGHLIN of Michigan. There was some talk when this outbreak of 1916 occurred that it was brought in in hides from Argentina and Venezuela—or where was that?

Dr. MOHLER. From South America. That was because the first case occurred in Niles, Mich., not very far from a tannery located in that town; but absolutely no connection could be established between the hides there and the outbreak.

Mr. McLAUGHLIN of Michigan. Have you determined in your own minds where it came from?

Dr. MOHLER. No, sir. There was no satisfactory explanation.

The CHAIRMAN. What is the amount of the unexpended balance of the two million and a half?

Dr. MOHLER. About \$514,000. Last year we expended about \$45,000 in looking up these reported cases and in having men at the stockyards looking for this particular trouble.

The CHAIRMAN. How much did you spend of this \$1,000,000 last year?

Dr. MOHLER. Not a cent. We have not spent any of that in any year since it was included in the bill.

The CHAIRMAN. You draw on that \$2,500,000 all the time?

Dr. MOHLER. Yes; and the \$1,000,000 is to be spent only in case of an outbreak. That is an insurance fund in case an outbreak occurs at some time when Congress is not in session.

The CHAIRMAN. At the same time, you spend some money?

Dr. MOHLER. Yes, sir.

The CHAIRMAN. So that you have spent thus far about \$2,000,000 of the \$2,500,000?

Dr. MOHLER. Yes, sir.

The CHAIRMAN. That is the only money appropriated?

Dr. MOHLER. Yes, sir; and most of that was used in the purchase of the affected and exposed cattle during the last outbreak four years ago.

Mr. TINCHER. You never spent any money better than that?

Dr. MOHLER. No, sir.

The CHAIRMAN. How much did you spend last year?

Dr. MOHLER. \$45,499.27. That leaves a balance of \$514,000 of that original \$2,500,000 appropriated about four years ago.

The CHAIRMAN. Is that for the current year?

Dr. MOHLER. That is for the fiscal year just past, you know. I mean the last fiscal year; we spent that for the fiscal year 1919. That leaves \$514,000 as the balance.

The CHAIRMAN. How much have you spent this year?

Dr. MOHLER. I do not have an account of that expense with me. There has not been much spent except the salaries of these men at the stockyards and the investigation of two or three scares.

The CHAIRMAN. It will probably be about the same?

Dr. MOHLER. Probably about the same, unless numerous scares come in. We have to send men a good many miles sometimes when there has been a report of a foot-and-mouth outbreak at some remote point.

Mr. McLAUGHLIN of Michigan. Have you a memorandum of the number of men employed on this particular work?

Mr. MOHLER. Yes, sir.

Mr. McLAUGHLIN of Michigan. Have you in mind how many there are?

Dr. MOHLER. No; I have not the full data here. We always send our most experienced men. For instance, the last scare we had was a reported outbreak of foot-and-mouth disease in southern Illinois. We had an expert in Chicago, so instead of sending a man from the nearest point to southern Illinois, which would have been East St. Louis, we took the expert from Chicago and sent him a couple hundred miles to investigate that report. We think it is better to send a man that extra distance who knows the disease rather than to use a man, only 25 miles away, who has not so much experience.

The CHAIRMAN. I take it all your veterinarians are on the lookout for this?

Dr. MOHLER. Yes; they are. But we have some who are more experienced than others.

Mr. McLAUGHLIN of Michigan. The man in Chicago is engaged on the work regularly?

Dr. MOHLER. Only when an investigation in that zone is required, and all we charge against the foot-and-mouth fund is for his time and trip. The point I am trying to make is the department has a

man at the East St. Louis stockyards, 25 miles away, but his judgment would not have been as good to me as the judgment of the experienced man in Chicago, who has gone through all these outbreaks from 1902 on. I always try to get the best judgment of the best man in these cases.

The CHAIRMAN. You do not employ anybody for this service?

Dr. MOHLER. At all the important stockyards we have one man employed from this particular fund.

The CHAIRMAN. Only one man employed permanently?

Dr. MOHLER. One man employed permanently at each of the stockyards.

The CHAIRMAN. At how many stockyards?

Dr. MOHLER. About 27.

Mr. RUBEX. He does not do this work alone?

Dr. MOHLER. Oh, no.

Mr. WILSON. In this meat-inspection service have you any unexpended money for the salaries of the meat inspectors that you have not used?

Dr. MOHLER. Money that was appropriated last year for promotions?

Mr. WILSON. Yes.

Dr. MOHLER. No, sir; every penny of that has been used up.

Mr. WILSON. I am glad to hear that because I think there ought to be something done. I know of some of the meat inspectors, in some of our larger cities, at least, because I hear so much about them, who are practically destitute.

Mr. McLAUGHLIN of Michigan. You and Mr. Rainey got everything there was.

Mr. WILSON. We did not get enough.

Mr. McLAUGHLIN of Michigan. You got it all nailed down.

Mr. RAINEY. The whole morning and part of yesterday has been taken up with the discussion of the eradication of tuberculosis in cattle, in sheep, in horses, in hogs. Now, we just ought to stop here for a moment and find out if we can not eradicate a little of the tuberculosis in a few human beings who are working for the Government in the Bureau of Animal Industry. Last year, in the general appropriation, this committee allotted \$120 increase to the veterinarians and inspectors, but they did not allow it to the clerks, to the girls employed in the department who assist the veterinarians in the various offices scattered through the various stockyards throughout the country. I understand the ruling of the Secretary was they had no appropriation for them and therefore could not allow them an increase. And right on this point, I want to call the attention of the doctor and to serve notice on the subcommittee that when the time for it to consider this comes I shall be delighted to ask the privilege of appearing to ask that the clerks be granted the increase of \$120. I think there are about 250 clerks; is that correct?

Dr. MOHLER. Two hundred and fifty, about.

Mr. RAINEY. Who would be entitled to that? That would amount to about \$30,000 for human beings, many of them probably with families and large families, to prevent not only tuberculosis in those families but in their children. That is of paramount importance. That is No. 1. I think the animals are secondary. The second thing I want to call the doctor's attention to is this, that in the Bureau of

Animal Industry you have grade No. 1 and grade No. 2 lay inspectors. There are a number of those grade No. 2 lay inspectors that receive about \$1,500 a year. Is that correct, Doctor?

Dr. MOHLER. A very few. Most of them receive only \$1,320.

Mr. RAINEY. There are a number that receive \$1,500?

Dr. MOHLER. Yes; there are some.

Mr. RAINEY. I think there are about 600 grade No. 2 inspectors that receive \$1,320 a year that have been in the service for over five years. Now, there is dissatisfaction among those men. They are working alongside of men receiving \$1,500 doing the same kind of work, and they are receiving only \$1,320. Let me cite a practical illustration. A fellow out in the stockyards by the name of Jack Murphy has been with the Government for 28 years. He is at present out in the hog department in the stockyards proper. Jack Murphy has trained most of the veterinarians and most of the grade 1 inspectors that have been brought into the stockyards. He is a fellow who knows the business thoroughly; he has the confidence of all the men there, and he is only getting \$1,320 a year. Now, there is no chance, according to some system or method of procedure of the department, for him to be advanced to \$1,500, other than certain marks that they give, a sort of civil-service requirement of efficiency. Now, Jack may not have the intelligence to pass an efficiency examination, but I will say to Dr. Mohler, Mr. Harrison, and Mr. Houston that Jack Murphy can go to any packing house in the country, alongside of any veterinarian, with the exception of the distinguished Dr. Mohler here, and Kiernan, and some of the scientific gentlemen (who I also insist are greatly underpaid), and Jack Murphy can do as efficient work as anybody out in the stockyards, and he is only getting now \$1,320 a year.

I do not think it is the object or the desire of this committee to appropriate \$2,500,000 for the eradication of tuberculosis in cattle and appropriate \$1,000,000 for viruses and these other ingredients to prevent this disease in animals and neglect the men carrying on this inspection work.

Mr. McLAUGHLIN of Michigan. He is one of the large number of second-grade inspectors?

Mr. RAINEY. Yes.

Mr. WILSON. And there are a lot more just like Jack Murphy.

Mr. RAINEY. Yes.

Mr. WILSON. And men with large families. This Jack Murphy you are speaking of raised a large family and raised them well, and they have to struggle to get along.

Mr. McLAUGHLIN of Michigan. Is there not some way, after a certain length of time, and they show their capacity, by which that man can be passed to first grade?

Dr. MOHLER. Mr. McLaughlin, our grade 2 is really the first grade so far as quality and technical experience are concerned. Jack Murphy is one of a large number, and to promote them all will require a large sum of money, which I would be very glad to see appropriated. They were all promoted last July, of course, as a result of the effort of some of the members of the committee, Mr. Rainey and others, but the amount was very small compared with the importance of their activities and the increased cost of living.

Mr. McLAUGHLIN of Michigan. How much?

Dr. MOHLER. \$120 per annum.

Mr. RAINEY. Previous to that they were getting \$1,200. Here is the idea: I think after a certain length of time, if a man has been in the department for five years, working alongside of another fellow getting \$1,500 a year, and especially doing the same kind of work, both being capable, they both ought to be entitled to the same salary. If the man is not as efficient as the man getting \$1,500 a year, then he ought to be discharged. I have called this to the attention of Mr. Harrison, and Mr. Harrison said that it takes so much time and red tape to discharge them, and there should be permission given to the department, after they have served a certain apprenticeship and show ability for this particular kind of work, to pay them the same amount of salary as the man working alongside of them and receiving \$1,500.

Mr. McLAUGHLIN of Michigan. What is the title of the man working alongside of them and receiving \$1,500?

Mr. RAINEY. He is grade 2.

Dr. MOHLER. No; a veterinary inspector.

Mr. JACOWAY. Won't that be worked out in the work of the Reclassification Commission?

Mr. RAINEY. No; the distinction there is, if you delay until the Reclassification Committee takes it up, it will start out on the basis of \$1,320, and the fellow would still not have the same opportunity as the fellow getting \$1,500. I think it ought to be ironed out and they ought to be put on a par now, and then let the Reclassification Commission handle it altogether.

Mr. McLAUGHLIN of Michigan. What would be the objection to putting them all on a par? You speak of Mr. Murphy being particularly efficient.

Mr. RAINEY. I just happened to run across him.

Mr. McLAUGHLIN of Michigan. There are others?

Mr. RAINEY. A great number.

Dr. MOHLER. That is right.

Mr. McLAUGHLIN of Michigan. Who are unusually efficient as compared with the large number that are employed? Why would it not be well to create another grade and to select those like Mr. Murphy and to put them in that other grade, with a proper increase in salary, and not to increase them all? Perhaps some of them, a great number of them, do not deserve it as Jack Murphy does.

Mr. RAINEY. The reason I cite Jack Murphy's case in particular, is that I go out in the stockyards occasionally, and I met this man one day at the stone gate and began to discuss the question of salary with him. He told me the length of time he had been there, about 28 years, and how much he was getting, and then I inquired of others out there about Jack Murphy and his efficiency and found he was considered by a number of men out there as one of the best men they have.

Mr. McLAUGHLIN of Michigan. It looks to me like there ought to be a regrading and perhaps another class created.

Mr. TINCHER. Perhaps a class 2-A.

Mr. HUTCHINSON. You say this man, Jack Murphy, taught these veterinary inspectors?

Mr. RAINEY. When they first come out of college they are just theorists.

Mr. HUTCHINSON. But they have to go through a course of study?

Mr. RAINEY. Oh, yes; I do not wish to disparage the ability of those men.

Dr. MOHLER. This man is a very good practical man and knows the hog business from a to z, and also all the commission men. You and I could go into the yards and on the first day we would have to be shown by somebody the rules of the game, how the hogs are unloaded at the docks, how they are brought to the scales, and how purchases are made, and things of that kind.

Mr. HUTCHINSON. Why could he not go through some school as a man who is given a course of study?

Dr. MOHLER. A great number of lay inspectors have done so and become veterinary inspectors.

Mr. JACOWAY. Can you not work it out along the line suggested by Mr. McLaughlin, of making another grade?

Dr. MOHLER. We could if we had the money, but we have not the money to do it.

Mr. JACOWAY. How much more money would it take? Mr. Rainey estimated \$30,000.

Mr. RAINEY. That is for the clerks—these girls and men.

Mr. JACOWAY. About how much would it take?

Mr. RAINEY. There are 600 men, approximately, who have been in the department for more than five years, receiving only \$1,320. To raise them all it would approximate about \$140,000; from \$140,000 to \$150,000. To grade them according to Mr. McLaughlin's suggestion it would not take that much. About \$100,000, do you think?

Dr. MOHLER. That would help a great deal, of course.

Mr. McLAUGHLIN of Michigan. The good man ought to be raised, but in every bunch like that, 600 of them, there are a lot who just travel along with no particular efficiency and who are not deserving of an increase. I believe in giving an increase to those who deserve it, and it might be done by creating another grade, to which these deserving ones can be elevated.

Mr. RAINEY. Will you work out some suggestion along that line, Doctor, keeping in mind a \$100,000 increase?

Dr. MOHLER. We will see that the deserving men get it if we receive the \$100,000. We could establish a subdivision of grade 2.

Mr. WILSON. Let us know how much it will take, whether it is \$100,000 or some other amount.

Mr. McLAUGHLIN of Michigan. There are always in a bunch like that some who are efficient and some inefficient workers, and there is a lot of injustice done.

Dr. MOHLER. There is no question about that.

Mr. JACOWAY. Who would say they are efficient and ought to be promoted?

Dr. MOHLER. We have to depend solely on the decision of the inspector in charge where these men are working.

Mr. WILSON. You have a record of the men?

Dr. MOHLER. We have a record, and we divide them into classes A, B, C, and D. The class A men are those who should be promoted at once; the B men are those doing good work and should be promoted at the average rate; the C men are those fellows who are just getting by; and the class D men are the fellows who should be dismissed or demoted.

The CHAIRMAN. How many clerks would be affected by the suggestion of Mr. Rainey? They are the clerks outside of Washington?

Dr. MOHLER. Yes. They include only the meat-inspection clerks and are about 250 in number.

Mr. HUTCHINSON. Why draw the line on the meat-inspection clerks?

Dr. MOHLER. There would be quite a discrimination against the clerks in the tick-eradication service, the hog-cholera work, the virus and serum offices, and the other divisions if you did not include them also.

Mr. HARRISON. The question also arises as to whether it would be desirable to consider only the clerks in the Bureau of Animal Industry. There are a number of employees in other branches of the department in essentially the same situation. If you will glance through these estimates you will see that a number of laborers at \$540 and \$600 a year are provided for. How can they exist, much less live, on such salaries? I do not want the committee to get the impression that the situation to which Mr. Rainey refers exists only in the Bureau of Animal Industry or only in the meat-inspection service of that bureau. If the employees of these branches are to be considered, the employees of other bureaus ought not to be overlooked.

The CHAIRMAN. How many clerks are employed outside of Washington who would be affected by this?

Dr. MOHLER. In the meat-inspection work, there are about 250 that would be covered.

The CHAIRMAN. Employed at the various markets?

Dr. MOHLER. Yes, sir.

The CHAIRMAN. How does that salary compare with the salary paid here in Washington?

Dr. MOHLER. It is a little bit lower.

The CHAIRMAN. How much lower?

Dr. MOHLER. About \$200.

The CHAIRMAN. \$200 a month?

Dr. MOHLER. No; a year.

The CHAIRMAN. And they get the benefit of the bonus?

Dr. MOHLER. Yes, sir; they all get the benefit of the congressional bonus.

The CHAIRMAN. The same bonus that is paid here?

Dr. MOHLER. Yes, sir.

The CHAIRMAN. They get about \$200 less; why the discrimination?

Dr. MOHLER. We try to select the outstanding clerks, the best equipped, the highest type field clerks, and bring them into Washington. If we learn of such \$1,200 clerks in Mississippi or Texas we try to bring them in here if we can, and naturally we give them a \$200 increase if there is such a vacancy.

The CHAIRMAN. Are we to understand these clerks are less efficient than those employed here?

Dr. MOHLER. No; but we have a higher average of efficiency in our Washington offices. I am speaking about the average. We have some very fine clerks in all these outside positions.

The CHAIRMAN. You are speaking of the clerks?

Dr. MOHLER. Yes, sir. The average skill of the clerks here in Washington, due to their more varied and longer experience, is higher than the average of the clerks in the field. That is because,

as I said before, we try to select the outstanding clerks in the field positions and bring them into Washington if we can get them to come. Some of them prefer to stay in their home towns, and therefore we have a number of exceptions to the average I am speaking of.

The CHAIRMAN. You take into consideration the cost of living?

Dr. MOHLER. Yes; somewhat.

The CHAIRMAN. They can live cheaper in their homes than by coming to Washington.

Dr. MOHLER. We consider there is a much higher living cost in Washington than on the outside where most of our men are located.

The CHAIRMAN. But that would not apply to all the plants in all the cities? It would cost as much to live in Chicago as it does to live in Washington?

Mr. RAINEY. I do not think so. We can live in Chicago much cheaper. I make that statement because of my experience here for a couple of years. But the distinction of Dr. Mohler about the better caliber of the clerks in Washington, those they can attract to come to Washington, they may come so as to be at the seat of the National Capital, and they are willing to work here for a few years to see Washington and its environments and to get acquainted with its historic spot; while back in Chicago the little boys and girls do not want to leave their home environment and they stay at home and are willing to work back there for \$1,200 a year where they would probably have a more lucrative stipend if they came to Washington. Now all we ask is that the efficient clerks out there receive \$10 a month increase the same as was granted to the lay inspectors and veterinarians a year ago.

The CHAIRMAN. The doctor says they pay \$10 a month less because it costs \$10 less a month to live there.

Dr. MOHLER. That is not the only thing, by any means.

The CHAIRMAN. If that is true, then they are receiving as much as the others, are they not?

Dr. MOHLER. Probably, considering the difference in the cost of living. We have men who prefer to go back to their homes and take less money. For instance, we had a man not long ago who went back to Chicago and was willing to go for \$200 less rather than to stay in the city of Washington. And we had a similar case recently, where the man went back to Philadelphia at a salary of \$1,500 when he was getting \$1,600 here. The position in Philadelphia only paid \$1,500, but he was willing to be reduced \$100 in order to get back home.

The CHAIRMAN. And you take into consideration the service rendered?

Dr. MOHLER. Yes, sir.

The CHAIRMAN. How does the service rendered there compare with the service rendered here? Does the difference in the cost of living here counterbalance the other?

Dr. MOHLER. The average training of the clerks in our Washington offices is greater than the average training of the clerks in the field, and therefore they ought to be paid more, irrespective of the cost of living. Their responsibilities are greater; they have greater opportunities to show ability than they do in some of the field stations, and it is harder work of a more varied character.

The CHAIRMAN. Then, according to your statement, the increase would not be justifiable?

Dr. MOHLER. I want to see them all increased; I think they should all be increased.

The CHAIRMAN. Unless they all are increased, there would be no justification?

Dr. MOHLER. I think it would be an injustice to the clerks in the other divisions of the bureau to have the clerks in the meat-inspection service increased and they be left out.

The CHAIRMAN. I did not catch that.

Dr. MOHLER. I say I think it would be an injustice to have the clerks of one division promoted and leave out the clerks in the other divisions—the Dairy Division, the Animal Husbandry Division, the Tuberculosis Eradication Division, etc. All these clerks are on the statutory roll and the clerks in these other divisions can not be cared for from the lump funds as they could if they were professional or technical employees.

Mr. TINCHER. How do the salaries compare with the clerks in the Post Office Department?

Dr. MOHLER. I am not familiar with the salaries paid in the Post Office Department.

Mr. WILSON. It is less—very much less.

The CHAIRMAN. You make some distinction between the veterinarians and the other employees you have?

Dr. MOHLER. Those lay inspectors are technical men, experienced in live stock and the handling of meat.

The CHAIRMAN. They are not veterinarians?

Dr. MOHLER. No, sir; they are technical lay inspectors.

The CHAIRMAN. They have different salaries?

Dr. MOHLER. Yes, sir.

Mr. RAINEY. The veterinarians start in at \$1,500?

Dr. MOHLER. The veterinarians start in at \$1,500.

Mr. RAINEY. And what is the maximum?

Dr. MOHLER. \$3,540, and there is only one man receiving this maximum.

The CHAIRMAN. And the lay inspectors start in at what?

Dr. MOHLER. At the present time they start in at \$1,080.

Mr. RAINEY. And \$1,500 is the maximum. Here is the point I want to develop, alongside of the doctor's suggestion of these people coming to Washington: Ninety per cent of the members of Congress come to Washington for \$7,500 a year, where, in their home towns, if they stayed home and applied themselves with half the energy they do to the work of the Government, they would get \$25,000, \$50,000, and more. I have listened to Congressmen over on the floor of the House who, if they were home, in private practice, representing some private corporation, I dare say, would insist on a retainer of \$50,000 a year—easy money. I do not know why it is they come here. It must be a germ—something in the blood. They desire to serve the Government or to be patriotic, or they want power and influence in their community. It is rather difficult to draw the line of demarcation.

The CHAIRMAN. They are volunteers, are they not?

Mr. RAINEY. A number of them are conscripted?

Mr. TINCHER. To come to Congress?

Mr. RAINEY. Yes. In a great measure it is for political reasons.

The CHAIRMAN. Is there anything more, Doctor?

Dr. MOHLER. Nothing else, thank you.

The CHAIRMAN. Thank you, Dr. Mohler.

(Thereupon the committee took a recess until 2 o'clock p. m.)

Activities under lump-fund items, Bureau of Animal Industry.

Projects.	Allotment, 1920.	Estimate, 1921.	Increase.
Inspection and quarantine:			
(a) Eradication of scabies in sheep.....	\$157,355	\$157,385	.....
(b) Eradication of mange (scabies) in cattle and horses.....	57,881	67,881	\$10,000
(c) Supervision of interstate transportation of live stock and inspection of Southern cattle outside of the quarantine area.....	149,452	174,452	25,000
(d) Enforcement of the 28-hour law.....	28,000	28,000	.....
(e) Inspection and mallein testing of horses for interstate move- ment.....	4,000	4,000	.....
(f) Preparation and distribution of mallein and blackleg vac- cine.....	13,652	13,652	.....
(g) Preparation and distribution of field test outfits for dipping baths.....	1,500	1,500	.....
(h) Investigation and chemical testing of dips and disinfectants.....	2,850	2,850	.....
(i) Inspection of animals for importation.....	68,900	68,900	.....
(j) Quarantine of animals at ports of entry.....	12,900	12,900	.....
(k) Supervision over the sanitary handling and control of hides, skins, other animal by-products, hay, etc., offered for entry into the United States.....	14,780	17,800	3,020
(l) Inspection and testing of animals for export to foreign coun- tries.....	7,500	9,500	2,000
(m) Inspection of vessels carrying export animals.....	2,700	2,700	.....
(n) Investigation of methods of disinfecting hides.....	3,500	3,500	.....
	525,000	\$ 565,020	40,020
Eradication of tuberculosis:			
(a) Animal tuberculosis control looking to eradication.....	1,457,000	1,457,000	.....
(b) Preparation and distribution of tuberculin.....	28,000	28,000	.....
(c) Investigation of animal tuberculosis.....	15,000	15,000	.....
	1,500,000	\$ 1,500,000	.....
Eradication of cattle ticks:			
(a) Tick eradication.....	673,580	673,580	.....
(b) Preparation and distribution of field test outfits for dipping baths.....	18,400	18,400	.....
(c) Live stock demonstration work in tick freed areas.....	50,000	50,000	.....
	741,980	\$ 741,980	.....
Dairy investigations:			
(a) Dairy farming and extension.....	78,890	98,890	20,000
(b) Dairy manufacturing.....	49,240	49,240	.....
(c) Dairy research laboratories.....	73,180	* 103,030	29,850
(d) Milk investigations and demonstrations.....	43,240	43,240	.....
(e) Dairy Division experiment farm.....	42,290	42,290	.....
(f) Western dairy extension.....	39,210	44,210	5,000
(g) Improvement of dairy products.....	16,810	16,810	.....
(h) Breeding of dairy cattle.....	7,510	7,510	.....
	350,370	* 405,220	54,850
Animal husbandry investigations:			
(a) Animal genetics.....	5,110	5,110	.....
(b) Animal husbandry experiment farm (Beltsville, Md.).....	12,380	17,380	5,000
(c) Beef cattle investigations.....	20,380	57,380	37,000
(d) Certification of pedigrees.....	2,420	2,420	.....
(e) Sheep and goat investigations.....	82,160	* 164,440	* 82,280
(f) Swine investigations.....	78,990	78,990	.....
(g) Horse and mule investigations.....	30,660	30,660	.....
(h) Live stock production in the Great Plains region.....	.....	75,000	75,000
(i) Breeding horses for military purposes.....	36,940	36,940	.....
(j) Poultry investigations.....	58,640	58,640	.....
	327,680	* 526,960	199,280

* Includes \$7,360 transferred to statutory roll.

* Includes \$19,560 transferred to statutory roll.

* Includes \$10,820 transferred to statutory roll.

* Includes \$14,420 transferred to statutory roll.

* Including \$45,000 for purchase of land.

* Includes \$7,920 transferred to statutory roll.

Activities under lump-fund items, Bureau of Animal Industry—Continued.

Projects.	Allotment, 1920.	Estimate, 1921.	Increase.
Investigations of diseases of animals:			
(a) Rabies investigations.....	\$3,050	\$3,050	.....
(b) Glanders investigations.....	650	650	.....
(c) Forage poisoning or cerebrospinal meningitis of horses.....	4,362	4,362	.....
(d) Investigation of swamp fever.....	1,100	1,100	.....
(e) Diagnosis of and immunization against anthrax.....	1,100	1,100	.....
(f) Investigations of diseases of fowls.....	1,750	1,750	.....
(g) Miscellaneous biological experiments and investigations.....	6,808	6,808	.....
(h) Index catalogue and collection of parasites.....	3,350	3,350	.....
(i) Investigations of roundworms of sheep.....	10,336	10,336	.....
(j) Investigations of anthelmintics and the treatment of live stock for internal parasites.....	5,585	5,585	.....
(k) Investigation of parasitic protozoa, with particular reference to blackhead in turkeys.....	2,790	2,790	.....
(l) Investigations of cattle ticks, mange mites, and other external parasites.....	8,643	8,643	.....
(m) Miscellaneous investigations of animal parasites, their control and eradication.....	2,836	2,836	.....
(n) General maintenance of Bethesda experiment station.....	5,200	5,200	.....
(o) Breeding and feeding small experiment animals for disease research.....	4,000	4,000	.....
(p) Investigations of stock poisoning by plants.....	13,600	15,250	\$1,657
(q) Investigation of roundworms of hogs.....		15,000	15,000
(r) Developing and testing a new method of manufacture of blackleg vaccine.....		4,000	4,000
(s) Investigation of animal abortion.....	49,400	49,400	.....
	124,560	¹ 145,210	20,650
Investigation and eradication of hog cholera and enforcement of the virus-serum-toxin act:			
(a) Hog cholera control looking to eradication.....	404,365	404,365	.....
(b) Educational and demonstrational hog cholera work.....	42,500	42,500	.....
(c) Control of the manufacture, importation, and shipment of viruses, serums, toxins, and analogous products.....	163,560	193,560	30,000
(d) Investigation of methods of producing immunity against hog cholera.....	7,500	7,500	.....
(e) Investigation of the cause of hog cholera.....	15,000	15,000	.....
(f) Investigation of the mode of dissemination of hog cholera.....	8,120	8,120	.....
	641,045	² 671,045	30,000
Investigation and eradication of dourine.....	88,800	³ 88,800	.....
General administration work.....	26,686	26,686	.....
Meat inspection:			
(a) Purchase, preparation, and distribution of brands and branding ink.....	10,000	10,000	.....
(b) Special supervisory inspection.....	44,100	44,100	.....
(c) Laboratory inspection.....	90,000	90,000	.....
(d) Ante-mortem inspection of animals for slaughter.....	240,000	240,000	.....
(e) Post-mortem inspection of animals.....	1,512,790	1,512,790	.....
(f) Supervision of the preparation and distribution of meats.....	1,757,550	1,757,550	.....
(g) Inspection at public markets.....	15,900	15,000	.....
(h) Supervision of operations conducted under certificates of exemption.....	12,000	12,000	.....
(i) Examination of imported meats and meat food products.....	50,000	50,000	.....
(j) Field overhead and miscellaneous meat inspection.....	145,500	145,500	.....
(k) Miscellaneous laboratory studies of meat and meat food products.....	12,500	12,500	.....
(l) Investigations of pathological conditions noted during meat inspection.....	10,000	10,000	.....
(m) Zoological investigations relating to meat inspection.....	3,500	3,500	.....
(n) Investigations upon the control of the house fly and other insects in establishments operating under Federal meat inspection.....	1,000	1,000	.....
	3,903,960	⁴ 3,903,960	.....

¹ Includes \$3,760 transferred to statutory roll.² Includes \$12,100 transferred to statutory roll.³ Includes \$3,600 transferred to statutory roll.⁴ Includes \$35,680 transferred to statutory roll.

COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Thursday, December 11, 1919.

BUREAU OF PLANT INDUSTRY.

The committee met pursuant to recess, Hon. Gilbert N. Haugen (chairman) presiding.

The CHAIRMAN. Who do you wish to testify first, Mr. Harrison?

Mr. HARRISON. Dr. William A. Taylor is here and will present the estimates of the Bureau of Plant Industry.

The CHAIRMAN. You may proceed, Dr. Taylor.

STATEMENT OF DR. WILLIAM A. TAYLOR, CHIEF OF THE BUREAU OF PLANT INDUSTRY, DEPARTMENT OF AGRICULTURE.

Dr. TAYLOR. The Bureau of Plant Industry, page 64. By way of preliminary statement it may help you to appreciate our situation somewhat if I say that there has been an alarming increase in the cost of the work of the Bureau of Plant Industry, which involves travel and field experimentation, including the employment of labor, the purchase of equipment, and the numerous ordinary things that have to be done in experimentation in the production of crops. We have cut close in conducting our work this year. We shall be compelled to cut still closer, even to stop some important lines of work in order to maintain those which appear to be more important, under these estimates. This is emphatically true of the paragraphs which do not provide increases, as two or three do, specifically, to meet these increased costs. They are simply the increased costs which a farmer would experience if he had no income from crops sold. Costs are up, labor is up, materials are up, equipment is up, and we are hard up against it when it comes to carrying along our work.

It may help in connection with the work of the Bureau of Plant Industry to recall that it is necessarily undertaken upon a national basis. The problems that we attack are either big national problems, broad regional problems, or highly specialized problems which, in the large, State activities are not in a position to grapple with, at least not by themselves. This policy has rested on the understanding that when the department was established in Lincoln's administration and the State agricultural colleges at substantially the same time were provided, the country adopted a dual policy with respect to the encouragement of agriculture. This in part was effected through appropriations to the States for their colleges and their experiment stations, and that the remainder was effected through the Federal department. Subsequently as the work of both the State institutions

and the department developed and took shape, particularly at a time about 20 years ago during the long secretarial administration of Secretary Wilson, a fairly definite concrete policy was formulated which I think in general has been followed, certainly in the work of the Bureau of Plant Industry, of asking the question every time a proposal comes up, "Is this a question which requires attention by the Federal department, either by itself or jointly with the State activities?" We recognize a citizen of a State as a citizen of the United States also. We recognize a group of citizens as entitled to a hearing and consideration here. We know that this is in your minds as the real policy of the Federal Government with respect to the encouragement of agriculture. We are dealing here with an industry which during this year has produced something like \$15,000,000,000 worth of crops, independent of the live stock and of other production. The appropriation which these estimates cover in the Bureau of Plant Industry is the appropriation which we submit is necessary adequately to cope with the problems that we carry the responsibility for with respect to the production of crops, the control and eradication of plant diseases, the improvement of crops, the introduction of new ones from other countries, and to a minor extent to the utilization of crops.

I offer these suggestions merely by way of a reminder as to what our feeling is, what our understanding is of the purpose of the department and the general policy of the country with respect to them.

In the statutory roll, if you wish to take that up first, on page 64, item 12 involves a change in designation of the position heretofore carried as one seed warehouseman, at \$840, which in the estimate is changed to laboratory aid at \$840. In this, as in many of our low-salaried statutory positions, we have not found it possible to secure people to do the work. We have approximately at the moment, I believe, about 100 vacancies in these low-priced statutory positions in the Bureau of Plant Industry. People come into them, if they have nothing better in sight; they get a little experience with us, and find a better job and resign, and then we have to hunt for another. As a laboratory aid, in which position we use young people, we can use this place more effectively. As it stands of course we can not fill it with the laboratory aid.

The same character of change is involved in items 32 and 36. Item 32 is on page 65, one artist, \$900, changed to one laboratory aid, \$900. and item 36 on page 66, one photographer.

The CHAIRMAN. How about item 35?

Dr. TAYLOR. That is the same general character except it is a different rate. Item 36 is a photographer at \$840, changed to laboratory aid, \$840.

Item 35, one photographer, \$1,200, changed to one clerk, class 1, \$1,200.

The CHAIRMAN. Why is that change made?

Dr. TAYLOR. For the same reason, Mr. Chairman, that it is not possible at this time to secure and retain a competent photographer for \$1,200. The time was not so long ago, say 5 years ago, when \$1,200 was attractive to a photographer.

The CHAIRMAN. Are you going to dispense with his services?

Dr. TAYLOR. He has dispensed with his own services by resigning. The place is vacant.

The CHAIRMAN. You are getting along without a photographer?

Dr. TAYLOR. We are getting along without that particular one.

Mr. JACOWAY. I thought you just changed the name, but retained the man on the roll and let him draw the same money.

Dr. TAYLOR. These are vacant. The positions are so nearly continuously vacant that we feel it is right to make them available for clerical work.

Mr. CANDLER. You propose to fill item 35 with a clerk that you already have in the service?

Dr. TAYLOR. Yes; or a new appointment as may be needed at the time. What the situation will be on July 1 when this new statutory roll will be available, we, of course, can not tell, as to individuals.

Mr. RUBEY. This clerk will not do the same work that the photographer did?

Dr. TAYLOR. No; just clerical work.

Mr. PURNELL. Is it necessary to have a highly trained photographer for the work?

Dr. TAYLOR. Yes, sir; if the photographic work is to be done at all in the illustration of investigational features, it must be high grade. Money spent for low quality photographic records is wasted.

Mr. PURNELL. What do you propose to do for a photographer now?

Dr. TAYLOR. In this case?

Mr. PURNELL. Yes.

Dr. TAYLOR. We shall have to let these go.

Mr. PURNELL. Dispense with the services of a photographer?

Dr. TAYLOR. Yes, sir; we can get along without this photographer.

Mr. RUBEY. You have other photographers that you pay other salaries?

Dr. TAYLOR. Yes, we have. Many of our investigators do their own photographic work.

Mr. JONES. Do you have anyone here on the statutory roll who draws two salaries?

Dr. TAYLOR. It is not possible.

Mr. JONES. It is so reported that men draw two salaries in different departments.

Dr. TAYLOR. In the Department of Agriculture?

Mr. JONES. I do not know whether it was in the Department of Agriculture; I only ask you if it is. I only ask if a man draws two salaries so that it amounts to \$2,000?

Dr. TAYLOR. You have in mind the question whether any employee on the statutory roll in the Department of Agriculture draws a salary elsewhere. He could not draw two salaries in the Department of Agriculture. Whether there is any statutory employee of the department drawing a salary from the Government elsewhere I do not know. Not in the Bureau of Plant Industry.

Mr. CANDLER. I think there is a statute of the United States that prohibits a man from drawing two salaries.

Mr. JACOWAY. There is.

Dr. TAYLOR. The law specifies that two salaries totaling in excess of \$2,000 can not be drawn by one person.

Mr. JONES. In other words, if he does not draw \$2,000 he can have two positions, one for one department part of the time, and in another department part of the time.

Dr. TAYLOR. Yes.

Mr. HARRISON. He would have to work full time for the department?

Mr. JONES. Eight hours for you and the other department at night.

Mr. HARRISON. The only cases I know of involve some employees who work for the War Risk Insurance Bureau for a few hours at night. When the War Risk Insurance Bureau needed large numbers of clerks it sought the services of some of the employees in other executive departments for night work. Even in these cases, the total compensation may not exceed \$2,000.

It may interest the committee to know that, on the 30th of June, 1919, we had 377 statutory places which were vacant and which we were having difficulty in filling because of the low salaries. On July 31 there were 377 vacancies; 365 on the 31st of August; 375 on September 30; 388 on the 31st of October; and 404 on the 30th of November.

Mr. RUBEY. What was the average salary?

Mr. HARRISON. All the way up to \$3,000. One place in the division of publications, which was provided for in the current appropriation act, remained vacant for five months, and the money went back to the Treasury because we could not get a man with the requisite qualifications. We succeeded about a week or so ago. Another place, in the Bureau of Soils, at \$1,440, was vacant for five months, and the money went back into the Treasury for that period. This shows the difficulty we have in getting people and how the work of the department is held up because of our inability to secure eligibles at these low salaries. The \$3,000 place is the highest. The remainder of the places for which I have figures carry salaries of \$1,800 and less.

Dr. TAYLOR. Item 46, on page 66, one laboratory apprentice, \$720. We have asked a change of designation to one messenger or laborer, \$720, for the same general reason. The places of laboratory apprentice and teamster have been vacant for several years on account of the inability to secure help at the salary provided.

Item 63, on page 67, one blacksmith at \$1,200, we ask to be changed to one gardener at \$1,200.

The CHAIRMAN. You are dispensing with the services of the blacksmith?

Dr. TAYLOR. In some cases. In others we have had to appoint a blacksmith on lump in order to get a blacksmith at all.

The CHAIRMAN. Do you propose to employ a blacksmith from the lump sum, or dispense with his services?

Dr. TAYLOR. In the case of a blacksmith, we have to continue him on the lump sum.

The CHAIRMAN. How about the photographer?

Dr. TAYLOR. The photographer is a straight change from photographer to clerk.

Mr. JACOWAY. I do not get it clear in mind, unless this is it: You have a photographer, and he says in substance that he can not work for \$1,200, and there is a blacksmith who says he can not work for

\$900, and they quit. Then you hire some other persons, assign them anywhere in the department you want to, and the blacksmith and the photographer go out of the service. Is that it?

Dr. TAYLOR. Yes.

The CHAIRMAN. I understand that you will hire a man at an increased salary, and pay him from the lump sum?

Dr. TAYLOR. If we have the money available and can get the men.

The CHAIRMAN. Their services were required in the past. If their services are required now the proper thing would be to take them on at an increased salary.

Mr. McLAUGHLIN of Michigan. If a blacksmith is on the statutory roll at \$1,200 and he is dissatisfied and resigns, and the next day you get another blacksmith and put him on the lump-sum roll and pay him what you have to pay—\$1,500, say—and carry him that way, is that done?

Dr. TAYLOR. If an appointment of that character is made, the transfer from the lump-sum to the statutory roll is recommended to you in the estimates.

Mr. McLAUGHLIN of Michigan. Then the next time the estimates are made that man who was hired at \$1,500 is transferred to the statutory roll at \$1,500?

Dr. TAYLOR. At the salary which he has.

The CHAIRMAN. When you drop them from the statutory roll you put them on the lump-sum roll at whatever salary you think proper?

Dr. TAYLOR. My understanding in the case of both of these is that these represent places vacant now, or that have been so continuously vacant, vacant so much of the time during the last fiscal year, that it is evident that we can not keep them filled with competent people.

The CHAIRMAN. Are they dropped entirely, or are their places to be filled by appointments from the lump-sum roll?

Dr. TAYLOR. I can not tell you that, Mr. Haugen, without looking up the particular cases.

Mr. JACOWAY. But you do know the photographer is gone and is not working?

Dr. TAYLOR. That is my understanding.

Mr. JACOWAY. You have not increased the salary on the lump-sum roll? He has gone, and so has the blacksmith?

Dr. TAYLOR. Yes.

Mr. JACOWAY. Instead you have appointed other people to do clerical work?

Dr. TAYLOR. No; we can not appoint a clerk in this photographer's place.

Mr. JACOWAY. I thought you filled his place.

Mr. CANDLER. He has asked to have it changed, so that it may be filled.

Dr. TAYLOR. We want to able to do that; yes.

Mr. LESHAR. Where do you get this blacksmithing work done?

Dr. TAYLOR. We may be getting it done outside. I do not happen to know in this case.

Mr. RUBEY. Is it possible for you to let a man go because he will not take a certain salary, say \$1,200, and there is a vacancy? Is it possible for you to employ some other man from the lump-sum roll to take his place?

Dr. TAYLOR. If we have the money, we have the authority; yes, sir.

Mr. RUBEY. You have the authority to do that?

Dr. TAYLOR. Yes, sir.

Mr. RUBEY. If he resigns you can appoint him to do that work from the lump-sum roll?

Mr. McLAUGHLIN of Michigan. Yes; you can.

Dr. TAYLOR. Not to do the same work.

Mr. RUBEY. You can not put him back in the same position and pay him from the lump-sum roll?

Dr. TAYLOR. Not to do the same work.

Mr. RUBEY. You can transfer him from the statutory roll to the lump-sum roll?

Dr. TAYLOR. Not to do the same work. He can be transferred after change of duties.

Mr. HUTCHISON. Suppose you have an appropriation of \$1,200. That office is vacant for four months. You can not give a man \$150 for eight months?

Dr. TAYLOR. No. We can not pay him higher than that rate in that position. We can not pay him for any day higher than at that rate of \$1,200.

Mr. HUTCHISON. But you can not get anybody else for the position?

Dr. TAYLOR. No.

Mr. HARRISON. The salary for four months goes back into the Treasury.

Mr. JONES. That probably answers my question, but I will put it to you and see. Suppose during the year you want a photographer at \$1,200 a year; could you hire him and pay him from the lump-sum appropriation?

Dr. TAYLOR. Yes.

Mr. JONES. Then you are not losing any opportunity for getting a photographer by eliminating him from this estimate?

Dr. TAYLOR. No, sir.

Mr. JONES. Does not that, in effect, make it so that you can transfer, indirectly at least, or at least get some persons from the statutory roll to the lump-sum roll?

Mr. RUBEY. The money must be available. If the money is available, they can hire that man. If we do not appropriate enough, they can not.

Mr. JONES. With regard to the lump-sum appropriation, they may manipulate the whole fund to meet the condition. In other words, Doctor, suppose there are half a dozen of these items on the statutory rolls; if you find yourself in the same condition as now, that you can not employ the men at the salaries fixed on the statutory roll, because during the year changed conditions result in labor being less plentiful or something of that sort, and there is no provision made on the statutory roll to meet the situation, you can hire those men and go to the lump-sum appropriation and pay them the price fixed?

Dr. TAYLOR. Yes, sir.

Mr. McLAUGHLIN of Michigan. You can pay them any amount you wish under the lump sum, up to certain limits?

Dr. TAYLOR. Theoretically, yes; actually, no.

Mr. McLAUGHLIN of Michigan. You can hire a man and pay him more than the one who left the job was getting in the statutory roll?

Dr. TAYLOR. Yes; that is actually one of the difficulties.

Mr. McLAUGHLIN of Michigan. You can transfer this man after you have hired him at the higher rate and transfer him next year to the statutory roll at the salary he was receiving out of the lump sum?

Dr. TAYLOR. If you approve it.

Mr. McLAUGHLIN of Michigan. That is an increase of the salary of the man under the statutory roll?

Dr. TAYLOR. No, sir.

Mr. McLAUGHLIN of Michigan. It is an increase of the statutory compensation.

Dr. TAYLOR. It is an increase of pay for services rendered.

Mr. McLAUGHLIN of Michigan. It is an increase of salary in the statutory position, it seems to me.

Dr. TAYLOR. I think, Mr. McLaughlin, that the question there is just this: That, if you gentlemen do not approve and the Congress does not approve the transfer, or confirm the transfer from the lump sum to the statutory roll, the department can not do it.

Mr. McLAUGHLIN of Michigan. That is all right. I am entirely willing to do it. I like to see these men paid well. All I have ever had any kick about on any of these things is that we have had the responsibility but no authority over the matter. If we did not have the responsibility I would not care, but, having the responsibility, I feel we ought to have some authority.

Dr. TAYLOR. Our difficulty in administration in times when the dollar has shrunk, and outside industry has recognized that, is that, if we are tied 18 months or two years ahead, we can not say with any accuracy what we will require when these funds are available. In general terms, we do; in the larger sense we can, but we can not with accuracy.

The CHAIRMAN. In other words it is necessary to leave it to the department to determine salaries?

Dr. TAYLOR. Not entirely, I would say. To an extent, if there is to be efficient administration, I think so.

The CHAIRMAN. That is practically what is done now except for a few salaries paid out of the statutory roll.

Dr. TAYLOR. If there is to be full efficiency maintained, I think it will be found that in Government service, as in private business, there will have to be some discretion left to the administrative officials.

The CHAIRMAN. The present and past practice has been to leave the matter entirely to the department, outside of the statutory roll.

Dr. TAYLOR. In so far as lump sums are concerned, except for the limitation which Congress has fixed.

The CHAIRMAN. The limitation of \$4,500?

Dr. TAYLOR. Yes.

The CHAIRMAN. What do you say as to enlarging the statutory roll?

Dr. TAYLOR. With respect to scientific employees?

The CHAIRMAN. A large portion of the employees and the new ones to be added to the service.

Dr. TAYLOR. My feeling with respect to that would be this: That in two important particulars it would be damaging to efficiency. In the first place, for this reason, that in planning scientific work it is not possible to say 18 months in advance what manner, what quality of men can be got for a given job. You make an appropriation on an estimate which we submit. Our ideal would be perhaps a \$4,000 man, a full-grown, adequately-trained, experienced man. The time comes when the money is available on July 1 next. No such man can be had. Our next step may be the securing of a \$2,500 man and a \$1,500 assistant as the next best combination for attacking that particular problem. If we are tied by a \$4,000 statutory position we can not do it. It is either pay a \$3,000 man \$4,000 a year, which is destructive of morale as well as wasteful and unjustifiable in the handling of Government business, or let the work stand and come back to you a year from then for modification of that salary.

The second reason which occurs to me, which renders the statutory roll for scientific personnel inadvisable is this, that on a fixed statutory roll promotion can not occur except through impairment of the service by death or resignation. A fixed statutory roll leaves the administrator powerless to meet competitive conditions which arise, and they frequently arise and have to be settled within a period of a few days. In general, they have to be settled promptly for the reason that we have no contract arrangement, either actual or ethical, through which an American citizen is required to work for the Government for any fiscal year or number of fiscal years. Private employment has.

The CHAIRMAN. According to that, he should be placed on the statutory roll, then?

Dr. TAYLOR. I would not say that, Mr. Haugen. In the case of positions which are of a nature that makes them to a considerable extent interchangeable there is less objection.

Mr. JACOWAY. You have stated the difficulties. What is the solution?

Dr. TAYLOR. In my judgment the solution is to continue administrative authority and hold us to account.

The CHAIRMAN. Hold the department to account sounds all right, and is proper, but there is no accounting. That is not the fault of the department nor of this committee, but so far as Congress is concerned there has been no accounting.

Mr. RUBEY. Is not there an accounting at least to some extent? For instance, in connection with each one of these lump sum funds do they not set out in this statement how many men are employed at \$3,500, how many at \$3,000, and so on?

The CHAIRMAN. That is an estimate.

Mr. RUBEY. I know, but that is an indication. It shows in one column that they had a certain number of men at a certain salary in 1919, and there is in these estimates here some semblance at least of an accounting of what they have done with the money.

The CHAIRMAN. That is true. This table indicates what the department intends to pay these people.

Mr. RUBEY. That is in the future. What I want to point out in the tables is that they have given only what they spent in 1919. That is the only year that has been completed. They give an accounting of how they spent the money, and in the other column

they give an estimate of how they expect to spend the money next year.

Mr. JONES. There is probably sufficient information in these tables. As the gentleman says, one column shows the estimates for 1921 and the other shows the expenditures for the same things for 1919. The practical question that puzzles me is this, as was brought out by the head of the Weather Bureau when we were discussing the matter of employing five firemen to do the work that one ought to do (or three, at least, with the engineer), what is the character of work that is carried on by them? This committee asks the question, What of the administration of the department itself? There is a general notion throughout the United States—and you men who work for the Government as well as we here know it—that the question of Government efficiency is a joke. Whether that is true or not, it is the impression that, if private interests ran their business with the same amount of efficiency that the Federal Government is run they would become bankrupt. Just how we can remedy that I do not know, but I am satisfied—I have no proof of it—but I am satisfied, as sure as I am sitting here, that there are too many men employed in the service, in every department of the Government. There is where the appropriation ought to be cut. Whether you can do it or not, whether you have sufficient knowledge to do it fairly and equitably or not, is the question that puzzles me.

Dr. TAYLOR. So far as furnishing information is concerned as to exactly what is paid on lump funds, I take it that would not require more than a specification that the names of the individuals should be indicated. That information is obtainable at the department, certainly, with respect to each lump appropriation, with respect to any employee.

Mr. CANDLER. Under each item of lump-sum appropriation you set forth in the estimates the positions which are to be filled and the amounts at which each position is to be filled—the amount received by the employee. That is done every year in the estimates. Of course, we have to rely on the department to carry out in good faith the estimates.

Mr. JONES. I do not doubt that the department has expended \$9,000 for three, four, or five employees, as this schedule shows, but the point that worries me is whether that amount of work ought not to have been done at an expenditure of \$2,000. You see my point. That is a question of efficiency.

Mr. JACOWAY. I get an entirely different idea from that. If it were possible to get the people to do the work, I would be willing to spend a hundred million dollars for the Department of Agriculture.

Mr. JONES. I am not raising any issue with the Department of Agriculture as against other departments.

Mr. HARRISON. How about the men doing two or three men's work?

Mr. JONES. If that condition exists—

Mr. HARRISON. That condition does exist; there are men in the department who do work that ought to be done by two or three men.

Mr. JONES. Is the case of the five firemen the only one in which the work is not effectively done?

Mr. HARRISON. Is it possible for us to determine here whether certain men are doing their work effectively?

Mr. JONES. Yes; if a man says that two boilers are burning a certain amount of coal, that are correlated together, I do not care what the conditions are, that can be done by one man.

Mr. RUBEY. You mean one man on each shift?

Mr. JONES. I mean three men working 8-hour shifts. From the conditions spoken of by the Chief of the Weather Bureau, I believe, if the labor organizations would permit it, that the job of fireman and engineer could be combined, and the engineer would have little work to do. There is only one thing that is essential and that is to put coal in the boilers.

Mr. McLAUGHLIN of Michigan. And a ton and a half in 24 hours.

Mr. JONES. It is outrageous.

Dr. TAYLOR. The practical question that arises in cases like this is that, if you have statutory places at \$600 a year and firemen are worth \$900 a year, all that you can get for \$600 are boys and cripples.

Mr. JONES. I appreciate that.

Mr. HARRISON. These firemen get \$840 and \$720, while the Potomac Electric Power Co. is paying its firemen \$5 a day. You can imagine, therefore, the situation in which the department finds itself with reference to such positions.

Mr. LESHER. But they handle a great deal of coal, I imagine.

Mr. HARRISON. Our central power plant is comparable with the plant of the Potomac Electric Power Co.

Dr. TAYLOR. This principle is a vital one in connection with the statutory roll and the operation of the department activities both here and in the field. For the money that we can pay we can not get efficient men and have to take the culls and keep them shifting, with a frequent turnover.

The CHAIRMAN. When a member of the committee asks a question of a representative of the department it should not be construed in any particular as questioning the integrity of the department; the purpose is to get at the facts in order that Congress may do its duty.

Let me read from a report [reading]:

There is no doubt whatever that millions of dollars of the money which Congress voted for the conduct of the war and placed no restrictions thereon have been expended illegally and without warrant of law by the War Department in the purchases of land and the construction of new military posts since the armistice and without the express authority of Congress, as should have been the case.

That is exactly what we are making possible for this department to do. This line of inquiry is not for the purpose of criticizing the department, but so that we may intelligently inform Congress and do our duty. When we ask questions here, it is not for the purpose of impugning the integrity of the department or anything of the kind.

Mr. CANDLER. That statement is merely Mr. Anthony's report of the purchase of land by the War Department. That is controverted sharply.

The CHAIRMAN. That is the report.

Mr. McLAUGHLIN of Michigan. You do not doubt for a minute that the War Department wasted millions?

Mr. CANDLER. But that is an ex parte statement, never submitted to the committee, and never admitted.

The CHAIRMAN. I am trying to see whether we can conduct the business of this department in a satisfactory manner and if we can improve upon the present method. I am asking these questions with a view to giving each chief of bureau an opportunity to express himself on the proposition. It will then be up to the committee to determine whether we shall continue as in the past or adopt some other plan.

Mr. RUBEY. I appreciate that the questions you ask and the questions asked by the committee have not been with the view of criticizing, but with the view of getting information; but frequently we ask questions to get the information in the record so that the members of the House may get the information which we may already have.

Here is another point: The question came up the other day about these firemen in the Weather Bureau. That is a place where possibly there is a mistake made, and too many men are employed, and, while that crops out in the record and we get that information, there are hundreds of cases in the Department of Agriculture that we do not know anything about, and we do not get a chance to know anything about, where men work overtime, where they go back on Sundays, and that sort of thing; and I take it that, all in all, they are doing the best they can and that the Department of Agriculture, the chiefs of bureaus and those under them, are giving the very best service they can for the money they receive.

Dr. TAYLOR. Would you pardon just this interpolation? Two minutes will suffice for me at this time. Last evening I happened to look over the report of the dean and director of one of the leading agricultural colleges and experiment stations of the country who has for two or three years now undertaken to administer the affairs of his institution under a rather minutely segregated budget, which includes a statutory roll, and he relates there certain experiences that I am sure would be interesting to you. I have not the matter in full, but I have this paragraph which I jotted down, which consolidates his experience under such a system in operating an activity fairly comparable with the Bureau of Plant Industry. This is what he says [reading]:

Do people want the money well spent, or is it better that it be spent according to a printed price list? Is the great consideration human efficiency or mechanical efficiency? A segregated minutely itemized budget is an expression of mechanical efficiency which lacks the breath of life. It expresses the desire for accounting procedure and ignores the fundamentals of successful administration.

This follows a statement of specific instances of the loss of men from his investigational force through inability with reasonable promptness to meet competition, and it is, I think, what administrators of research and comparable work would experience from a statutory roll for scientific workers.

The CHAIRMAN. That may be good logic, but after all, Congress has certain functions to perform, and the question involved here is whether it shall perform them or turn them over to somebody else to perform.

Dr. TAYLOR. You understand, Mr. Chairman, that I am with you and desire to help.

The CHAIRMAN. What grieves me is that every time we ask a question it is assumed that we are questioning the integrity of the department. I never charged a public officer with lack of integrity unless I knew it absolutely and never wish to do so.

Dr. TAYLOR. I take it as a compliment to me that you ask me these questions, and I have answered you frankly.

The CHAIRMAN. Can you come back to-morrow at 10 o'clock, Dr. Taylor?

Dr. TAYLOR. Yes.

(Thereupon, at 5.20 o'clock p. m., the committee recessed until to-morrow, Friday, December 12, at 10 o'clock a. m.)

COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Friday, December 12, 1919.

The committee met at 10 o'clock a. m., Hon. Gilbert N. Haugen (chairman) presiding.

BUREAU OF PLANT INDUSTRY—Continued.

The CHAIRMAN. Dr. Taylor, you may proceed.

STATEMENT OF DR. WILLIAM A. TAYLOR, CHIEF OF THE BUREAU OF PLANT INDUSTRY, DEPARTMENT OF AGRICULTURE—Continued.

Dr. TAYLOR. Mr. Chairman, I believe we were at item 67, page 67, on the statutory roll, a change of designation of a \$600 position from "teamster" to "messenger or laborer" at the same salary, for the same reason as stated under item 46 on page 66. These positions have been vacant most of the time for several years, particularly during the last two years, and can not be filled.

Mr. JONES. Suppose you had a teamster at \$600 on the statutory-roll position, would you have found the necessity for asking now for one messenger or additional laborer at \$600?

Dr. TAYLOR. In the event that the messenger or laborer positions were on the statutory roll also?

Mr. JONES. Oh, no. You are now changing a teamster to one messenger or laborer at the same salary, and your argument is that you can not get a teamster or have not got a teamster at \$600. Now, suppose the statutory roll was filled as to this teamster, and also as to the photographer we had up yesterday, and one or two others—

Dr. TAYLOR. Yes, sir.

Mr. JONES. Suppose they were filled and you could fill them, would you find the necessity existing now to add to the statutory roll?

Dr. TAYLOR. Yes.

Mr. JONES. It is a transfer you are making, then?

Dr. TAYLOR. We now need a laborer, and it is either to provide a laborer on the lump fund or on the statutory roll in this place.

The CHAIRMAN. What you propose to do is to drop this laborer at \$540 and add one messenger to the number of messengers on last year's roll?

Dr. TAYLOR. It is to change this——

The CHAIRMAN. Drop this item?

Dr. TAYLOR. Yes. The \$600 is reverting——

The CHAIRMAN. Then you are adding one to the other item?

Dr. TAYLOR. Yes.

Mr. JONES. He is speaking of 67 and you are speaking of 68.

The CHAIRMAN. The same rule applies to all of them.

Dr. TAYLOR. \$600 is reverting to the Treasury through our inability to secure a teamster at \$600. We need the additional laborer position, which we can fill at \$600.

The CHAIRMAN. So you have added one to the roll?

Dr. TAYLOR. Added one; yes. In the case of item 68, 21 laborers, at \$540 each, changed to 21 messengers, or laborers, at \$540 each, that is to make it possible to employ messengers or laborers as the needs require.

The CHAIRMAN. In other words, you substitute item 69 for 68?

Dr. TAYLOR. Yes, sir. Item 69 carries 21 messengers or laborers, at \$540 each, in lieu of 21 laborers.

The CHAIRMAN. That takes the place of item 68?

Dr. TAYLOR. Yes, sir. That completes the statutory roll.

On page 68, in the general paragraph under which the Bureau of Plant Industry operates, the paragraph which authorizes the general activities, there is no change. That is an authorizing and not an appropriating paragraph.

The CHAIRMAN. There is no new language?

Dr. TAYLOR. No, sir. On page 69, item 79, the subappropriation "for investigations of plant diseases and pathological collections, including the maintenance of a plant-disease survey," carries an increase of \$15,000 over that for the present fiscal year. This increase is desired for the enlargement of the work of the plant-disease survey project, which has proved its value and usefulness not only to the Bureau of Plant Industry pathological service but also to the whole State experiment station service, that has to do with the investigation and control of plant diseases.

It consists of prompt scouting and collection of information regarding the occurrence of plant diseases and the dissemination of that information promptly to the institutions, in order that there may be a continuing touch between the pathologists both of the department and of the State institutions with the plant disease developments as they occur, rather than through a belated information received after the season has ended. It enables quick action and is in the nature of a comprehensive plant disease scouting service.

Mr. ANDERSON. When was this service inaugurated, Doctor; last year?

Dr. TAYLOR. It was begun in a small way three years ago and was enlarged during the war emergency period and maintained from funds from the stimulating agriculture appropriation which ceased to be available June 30.

Mr. LEE. What was your first appropriation for this item three years ago; do you remember?

Dr. TAYLOR. I think it was \$10,000, the amount which it still carries and which is the amount——

Mr. ANDERSON. You want to increase that \$10,000 by \$15,000, making the total \$25,000?

Dr. TAYLOR. Yes; for the plant disease survey. It is an activity which is distinctively national and broadly helpful in that it insures quick information when a new plant disease appears or when a known plant disease shows indications of becoming epidemic. We believe it is in the interest of sound administration to enlarge and develop this.

Mr. ANDERSON. How many men do you employ on this item?

Dr. TAYLOR. I can not tell you offhand, Mr. Anderson. I think about eight men are now employed, including the temporary employees.

Mr. ANDERSON. Do these men have connections out through the country by which they find out about the existence of these diseases, or is the extent of the investigation confined to what these men themselves can find out?

Dr. TAYLOR. No; it consists very largely of an organized information service, you may say, the plant pathologists of the State institutions cooperating. But it does require at times quick sending into the field during the crop season of men qualified on special lines of plant pathology to diagnose and determine the particular diseases involved in such a survey.

Mr. ANDERSON. What I had in mind was that eight men employed under an appropriation of this size would not discover very much themselves if they had no organization through which the information came.

Dr. TAYLOR. No. This barely maintains, you may say, a skeleton organization here.

Mr. ANDERSON. I take it this plant survey is connected up with the State colleges and the county agents, so that your information comes from all the sources that are actually in contact with the fields themselves.

Dr. TAYLOR. Yes, sir.

The CHAIRMAN. Are your men sent out at the suggestion of the county agents or colleges, or are they kept constantly in the field?

Dr. TAYLOR. They go out upon the receipt of any information that appears significant, whether it comes from farmers or from State institutions or from county agents, or frequently upon receipt of diseased plant material here which is suspicious or is identified as of serious character. A case in point would be the "take-all" disease of wheat. When the first material came in last April or May—in that case I believe it was from a county agent in Illinois——

The CHAIRMAN. Do you accept the work of the county agents and State officials and consider their findings as authoritative?

Dr. TAYLOR. To the extent that the information exists. It frequently develops——

The CHAIRMAN. They are high-class, specialized men?

Dr. TAYLOR. These plant-disease survey men are highly trained, specialized men. If you would like a fuller outline I have here——

The CHAIRMAN. We have an understanding that you will incorporate in the Bureau of Plant Industry statement the amount appro-

printed for each item. If you will insert that in the record that will cover it.

Mr. HARRISON. We will see that that is included in the case of each bureau.

The CHAIRMAN. That will save the time of the committee. Item No. 80 is next.

Dr. TAYLOR. Item No. 80, on page 70, "For the investigation of diseases of orchard and other fruits." In this subappropriation, which calls for \$87,935, there is included an increase of \$7,000. This increase is needed for pathological inspection of fruits at market centers in cooperation with the Bureau of Markets, which maintains the commercial inspection that is conducted by the Federal Government. These pathological advisers to the commercial inspectors are trained pathologists whose business it is to diagnose accurately the diseases which are found in fruits that arrive at markets in bad order, so that there may be as accurate a differentiation between the spoilage in transit that results merely from bad handling and packing and loading, or bad refrigeration in transit, and the spoilage which is traceable to specific plant diseases which it may be possible to control, either through proper treatment in the field or during the packing process.

Mr. MCKINLEY. How many of these men have you?

Dr. TAYLOR. We have two at present.

Mr. MCKINLEY. How many markets is the Bureau of Markets covering?

Dr. TAYLOR. They have a number of inspectors. I do not know the exact number in their inspection service.

Mr. MCKINLEY. How can you get along with just two? Why don't you need them at all places if you need them at any?

Dr. TAYLOR. Our men are, you may say, the instructors, the technical pathological instructors, of the inspection force of the Bureau of Markets. They are the instructors also of city health department inspectors, in particular cases. This week, for instance, the health officer of the city of New York has appealed to us to permit our men to deliver a series of addresses to his local inspection force, to inform them with regard to the plant diseases and their relation to the wholesomeness or unwholesomeness of the fruit and vegetable food-stuffs under inspection by his force.

Mr. MCKINLEY. Do these two men go from place to place?

Dr. TAYLOR. Yes; although their principal headquarters—that is, as they stand now—are in New York and Chicago, which are the largest receiving centers of these perishables in the country. We should enlarge this force somewhat. It is maintained at the present time by a makeshift assignment of funds to carry these two men, because we recognize it is of very great importance to the growers and shippers of produce.

Mr. MCKINLEY. Why should you be forced to do that when they have a large amount of funds? Why should not they have these employees themselves?

Dr. TAYLOR. Because this is highly technical pathological work which has to root back into the pathological laboratories. These men must keep steadily in touch with the advances that are made, the discoveries that are made in plant-disease investigations. These

men, in fact, have to maintain small temporary laboratories in connection with their headquarters in New York and Chicago to take up, instantly, lines of investigation in these diseases that need attention there.

Mr. ANDERSON. Has this investigation any relation to any current inquiry of the Bureau of Markets in regard to the effect of different modes of packing, refrigeration, and so forth?

Dr. TAYLOR. It bears an advisory relation to that. It does not participate in that work.

Mr. ANDERSON. Is any investigation of the question of packing now being made by the Bureau of Markets?

Dr. TAYLOR. Yes; of the effect of handling, packing, loading, and so on; and this is chiefly with respect to that inspection service which the Bureau of Markets maintains, under which it issues certificates, upon the request of either the shipper or consignee, as to the actual condition of the shipment when it arrives. The Bureau of Markets workers rely on the Bureau of Plant Industry for their technical information on these diseases.

The CHAIRMAN. How long have these two men been employed?

Dr. TAYLOR. About two years. There was a considerably larger force.

The CHAIRMAN. If this appropriation is allowed, how many will be added?

Dr. TAYLOR. Probably two.

Mr. TINCHER. I see this item number 80 carries an authorization for \$8,000 to be used for the investigation of the diseases of the pecan. It is necessary to still carry on that work, is it?

Dr. TAYLOR. Yes, sir. There are certain stubborn diseases which are being attacked through long-time experimentation that require the continuation of that work if the pecan industry is to be aided through the control of its diseases.

Mr. TINCHER. This will make 20 years they have carried this item.

Dr. TAYLOR. I think not, sir; so far as the pecan itself is concerned. The 20 years evidently applies to the entire duration of the paragraph.

Mr. JONES. What is the attitude of the men engaged in the business of raising those things as to the investigations made by you? Do they spend any money themselves for investigating these things?

Dr. TAYLOR. The individual fruit growers?

Mr. JONES. Yes.

Dr. TAYLOR. They do not hire pathologists.

Mr. JONES. Why do they not hire pathologists? It is to their direct interest, is it not?

Dr. TAYLOR. How could a farmer hire a pathologist?

Mr. JONES. How can a lumberman hire a forester?

Dr. TAYLOR. The lumberman may have capital bigger than the farmer.

Mr. JONES. If that is your answer, that he has not got enough money to do it, that is what I am trying to find out.

Dr. TAYLOR. I think that is the answer, sir; and I think that is the fact with respect to much of what the Federal Government and

the States are doing in these technical lines. The Federal Government and the States have monopolized the field of technical research and advice to this basic industry of agriculture. Until very recently, there have not been production units of a sufficient size to make possible at all the employment of trained specialists of this character.

Mr. JONES. Will there ever be so long as the Federal and State governments assume this burden?

Dr. TAYLOR. That is a question which I can not answer. Federal and State aid in this respect has been a fundamental policy so far.

Mr. JONES. I notice your appropriation for 1911, under this general heading of item 80, was \$34,000. Now your estimate for 1921, a period of 10 years, grows to \$87,000. And that is not only true of this but it is true of every item presented to the committee—a growth of 100 per cent in nearly every request for these investigations.

Dr. TAYLOR. The work has grown; the country has grown, and the need has grown. I believe that will continue.

Mr. JONES. But this investigation of diseases; is there a new disease discovered every year in these things?

Mr. ANDERSON. Several of them.

Mr. RUBEY. If they only discovered one a year we would be all right. [Laughter.]

Dr. TAYLOR. If the cure for a disease could be accomplished in a year it would be a very small matter. But we are still in the pioneer stage of knowledge with respect to many of these diseases, and they can not be figured out at a desk or even in the laboratories. They have to be worked out step by step, just as human diseases have to be worked out.

Mr. LESHER. I believe Mr. Soper, in my district, hires a man and keeps him at his nursery all the time.

Dr. TAYLOR. There are instances of commercial activities that have reached a magnitude or are endangered so seriously where they can do that.

Mr. LESHER. He hires one of these college professors who goes right into his nursery and studies it.

The CHAIRMAN. We will take up your next item.

Dr. TAYLOR. The next item, Mr. Chairman, is number 81, "for conducting such investigations of the nature and means of communication of the disease of citrus trees, known as citrus canker," etc. This is a very important item, in which the work has reached a stage where we consider it safe to recommend a material reduction of the appropriation.

The CHAIRMAN. We started this appropriation with \$430,000, with a view to exterminate the disease. How close are you to cleaning up?

Dr. TAYLOR. As Dr. Kellerman has personally handled this item, I will ask him to discuss it, Mr. Chairman.

The CHAIRMAN. We will be glad to hear from Dr. Kellerman. Kindly state exactly what you have been doing, what you expect to do, and how much is required.

**STATEMENT OF DR. KARL F. KELLERMAN, ASSOCIATE CHIEF OF
THE BUREAU OF PLANT INDUSTRY, DEPARTMENT OF AGRICULTURE.**

Dr. KELLERMAN. Mr. Chairman, you will remember the work began approximately four years ago with the estimate that the work would require a total appropriation of approximately \$4,000,000; that the disease was widely spread and that a term of years, somewhat indefinite, would be necessary to eradicate it. The work has progressed very favorably and with very little setback at any time. Severe tropical storms on two occasions have spread the disease so widely that unusual expense was necessary in these localities. That was in Texas, Louisiana, Mississippi, and Alabama, at different times, we required rather unusual expenditures for inspectors and for disinfectants in destroying the disease in these places.

The principle from the very beginning has been to locate the diseased trees and to have them destroyed.

The CHAIRMAN. You pay for the trees?

Dr. KELLERMAN. The trees are not paid for. There is a prohibition against using any Federal money for paying for trees, and the State funds we have used in the same campaign have followed the same general plan of expenditure that we have outlined at the start. The only cases of reimbursement that have occurred have been reimbursement provided by local organizations.

The CHAIRMAN. To what extent?

Dr. KELLERMAN. No account has been kept of those by us because they have not been counted as part of the eradication campaign.

The CHAIRMAN. How general is it?

Dr. KELLERMAN. In general terms, I think it is safe to say that approximately between \$150,000 and \$200,000 has been paid in indirect compensation.

Mr. McLAUGHLIN of Michigan. During the entire time?

Dr. KELLERMAN. During the entire time.

Mr. McLAUGHLIN of Michigan. Of four years?

Dr. KELLERMAN. During the entire time. That does not count the properties that have been donated without charge by individuals.

Mr. McLAUGHLIN of Michigan. Donated for destruction, you mean?

Dr. KELLERMAN. Donated for destruction. Those cases come about in this way: If a serious outbreak of the disease is found in the center of a young planting, the supposition is that trees in a considerable area around that point will also be diseased. As a matter of cheapness, in eradicating the disease, it is better for us to destroy that entire planting instead of merely to destroy the trees that we find diseased and to keep inspecting to catch the additional diseased trees as they appear. Wherever it has been possible, therefore, we have asked for the donation of a line of apparently healthy trees around areas that are found diseased—this as a result of the experience of the first 18 months' work in the eradication. Many thousands of healthy trees, therefore, have been donated; I mean apparently healthy trees—trees that may have been diseased, but which, as far as our inspectors could find, were healthy.

The CHAIRMAN. Is that always done voluntarily?

Dr. KELLERMAN. Always voluntarily.

The CHAIRMAN. Does anybody make it up?

Dr. KELLERMAN. Rarely. That is represented by about \$150,000. About that much has been contributed by local associations, citrus growers, individual bankers, and other local interests, for the purpose of reimbursing people who can not afford to give up properties of their own.

Mr. McLAUGHLIN of Michigan. You said a few moments ago that this disease was widespread?

Dr. KELLERMAN. At the time the work started, it was unfortunately widespread. It had been introduced in 1911.

Mr. McLAUGHLIN of Michigan. We did not know that, because it was largely in Florida, according to the report, and we hoped it was not in other parts of the country.

Dr. KELLERMAN. It never has extended west of central Texas.

Mr. McLAUGHLIN of Michigan. It has not reached California?

Dr. KELLERMAN. That is the point; the large orange industry in California has never been threatened with the disease.

Mr. McLAUGHLIN of Michigan. How early did you know it had reached as far as Texas?

Dr. KELLERMAN. In 1915, I believe; in 1915 or 1916. I would have to refer to my records to find exactly when we found it that far West.

Mr. McLAUGHLIN of Michigan. My recollection is that you found it much further East and that you hoped to be able to keep it there.

Dr. KELLERMAN. That has been the feeling from the start, that we wanted to keep it in the eastern United States and to eradicate it from the eastern United States.

Mr. McLAUGHLIN of Michigan. Yes, but you are speaking of Texas, evidently, as part of the eastern United States. We did not have that idea at the time.

Dr. KELLERMAN. No; at the very beginning, we reported the occurrence of the disease in the region of Port Arthur, Tex. (that was the report), of the disease from nursery stock that had been imported that first introduced the disease. The original reports to Congress pointed out the occurrence of the disease at Port Arthur, Tex., at Wiggins, Miss., at a point I do not remember in Alabama, and a half a dozen points in Florida. The Florida points were emphasized especially in all of the discussions before the committees, because the Florida commercial interests transcended all the other commercial interests in citrus culture.

The Florida citrus has been the big commercial citrus industry of the East. There has been a development of the citrus industry in the Satsuma orange, in what would have been too far north for the ordinary orange to thrive: that is, in northern Florida, Alabama, Mississippi, Louisiana, and Texas.

Mr. McLAUGHLIN of Michigan. It attacks the orange and what other kind of fruit?

Dr. KELLERMAN. It attacks all the oranges, grapefruit, limes, and lemons.

Mr. McLAUGHLIN of Michigan. It is confined to those?

Dr. KELLERMAN. It is confined to the citrus crop.

Mr. McLAUGHLIN of Michigan. Yes, I know it attacks those fruits, but I did not know but that there were some others.

Mr. KELLERMAN. No other types of fruit. Now this disease was so serious, was spreading so rapidly, that it apparently was going to destroy, within a few years, the entire citrus industry of the South-eastern United States. That was the reason for urging this campaign, and that campaign has been, I can safely say, completely successful. It has been. The disease, which was threatening to overrun Florida in another season had it been neglected for another season, has been reduced to almost complete zero. Only three trees have been found diseased in the entire State of Florida this year.

Mr. McLAUGHLIN of Michigan. In 1919?

Dr. KELLERMAN. During 1919 only one diseased tree was found in Mississippi. Those two States have made, decidedly, the most satisfactory record. That is partly due to the fact that in those States there were few, if any, abandoned citrus nurseries or abandoned citrus groves.

Mr. McLAUGHLIN of Michigan. You mean abandoned to the disease, with no effort to eradicate it?

Dr. KELLERMAN. I mean groves or nurseries that had been planted during the early years, abandoned by their owners and allowed to go wild, to turn back into jungle. Although more like ordinary scrub, uncultivated land, they consisted of anywhere from 5 to 50 per cent of scrubby orange trees. Those were not discovered at all until comparatively recently—during the last year and a half. In those abandoned groves the disease had become established, and, accordingly, the number of trees it has been necessary to destroy in Texas, Louisiana, and Alabama is still high, running from 1,000 to 9,000 in each State. That, however, while apparently a large number of trees, represents a very few trees that are grove trees and of value.

Mr. McLAUGHLIN of Michigan. Although the number of those trees is large, it would appear to me that it would be comparatively easy to take care of such a situation as that, if they were abandoned, by destroying the whole proposition.

Dr. KELLERMAN. That is what is now being done. It means a different type of inspection, however; it means the searching over of apparently open country for these wild citrus plantings, abandoned citrus plantings, instead of merely going to recognized citrus developments; and it has delayed the inspection work in those States on account of the necessity of a more general type of exploration and inspection. The work is progressing even in those States, however, so favorably that the confidence of the citrus producer in all of those States has been restored. That, I think, is one of the simplest ways to express the apparent success of the work up to the present time.

Mr. McLAUGHLIN of Michigan. Were those nurseries abandoned because of this disease?

Dr. KELLERMAN. No, sir; they were abandoned in most instances because of financial difficulties or frosts that brought about financial difficulties for the owners.

Mr. McLAUGHLIN of Michigan. So that the eradication of the disease and the assurance to the people that it can be eradicated is not the thing that has restored confidence and started up the industry again?

Dr. KELLERMAN. It is the thing that has restored confidence and has reestablished confidence in the industry in the States of Florida, Alabama, and Mississippi. I think confidence in the industry was

never lost in Louisiana, but citrus growing has always been a small home industry there.

In Texas, the industry in the northern part of the State, I think, is definitely gone. That has been perhaps the most troublesome area in many ways, both for the men who attempted to develop the citrus plantings, for the men who purchased them as they were being developed, and for the men who were trying to eradicate the disease. North Texas, that is the Houston section of Texas, is too cold for orange production. It is so nearly warm enough, however, that attempts have been made in successive cycles to establish orange production in that region; but the plantings have always frozen out anywhere from three to ten years after they were started.

Mr. McLAUGHLIN of Michigan. From the very first this impressed the committee as a very serious matter and something the Federal Government should take up, and, so far as I know, the members of the committee were entirely willing to make these appropriations that at the time seemed large but were necessary. The people of Florida—the legislature of Florida—contributed considerable sums of money?

Dr. KELLERMAN. Very large sums.

Mr. McLAUGHLIN of Michigan. They are still contributing?

Dr. KELLERMAN. Yes, sir.

Mr. McLAUGHLIN of Michigan. How about the contributions from other States?

Dr. KELLERMAN. The contributions from other States in many cases are larger than the sums the Department of Agriculture provides.

Mr. McLAUGHLIN of Michigan. How much in each State—can you tell us?

Dr. KELLERMAN. Texas has been appropriating approximately \$2,000 a month for carrying on its share of the work, or about \$24,000 a year; \$15,000 by Louisiana.

Mr. McLAUGHLIN of Michigan. How about Alabama and Mississippi?

Dr. KELLERMAN. Mississippi has ranged from \$8,000 to \$16,000, I believe.

Mr. McLAUGHLIN of Michigan. You can put the amounts in the record, can you?

Dr. KELLERMAN. I will put in the amounts for you.

Mr. McLAUGHLIN of Michigan. For each State.

Dr. KELLERMAN. Alabama has appropriated less; I think their contribution has been about \$5,000.

Mr. JACOWAY. Your initial estimate was for \$500,000, several years ago, wasn't it?

Dr. KELLERMAN. The suggestion was originally made, Mr. Jacoway, that \$4,000,000 would be needed for handling this work. The work has been financed on an annual basis instead of a lump sum.

Mr. JACOWAY. I am just trying to develop an idea here. Did you first come before the committee and ask for \$500,000 or \$250,000?

Dr. KELLERMAN. We asked for \$250,000 for the first annual appropriation.

The CHAIRMAN. I would like to ask you concerning the policy adopted. Is the plan of appropriating large sums to begin with in order to control a disease and eradicate it effective?

Dr. KELLERMAN. It is undoubtedly the wisest policy.

Mr. JACOWAY. That is what I was trying to get him to say. How was this disease introduced into the United States?

Dr. KELLERMAN. It was introduced by importing from Japan diseased nursery stock.

Mr. JACOWAY. And that error has been corrected so that none of this diseased stock can get in here now?

Dr. KELLERMAN. That has been corrected. That was corrected by the passage of the plant-quarantine act in 1912.

Mr. JACOWAY. This disease got such a control in other countries that it has practically destroyed the industry, has it not?

Dr. KELLERMAN. It has not destroyed the industry in Japan, where it has been for 10 or 15 years, because of difference in type of orange and also difference in climate. The Japanese climate is cool, and they do not grow our types of orange.

Mr. JACOWAY. By providing these sums of money and stamping out the disease where it is getting a foothold, won't we in time make the United States the greatest place for citrus fruits in the world? In other words, won't we make our country the leading market for citrus fruits?

Dr. KELLERMAN. I think so. I think there is no doubt about it.

Mr. McLAUGHLIN of Michigan. Will you please put in the record the amount spent in each State and the contribution of each State?

Dr. KELLERMAN. Yes, sir.

Mr. JONES. Not only by States, but by individuals in the State?

Mr. McLAUGHLIN of Michigan. The amount of money available in each State.

(The statement referred to follows:)

Citrus canker expenditures, 1915-1919, inclusive.

State.	State appropriations.	Miscellaneous contributions within States.	Federal allotments.
Alabama.....	\$4,973.75	\$3,967.50	\$88,796.50
Florida.....	459,304.21	121,501.50	767,702.83
Georgia.....	12,000.00		24,822.76
Louisiana.....	40,000.00		61,142.36
Mississippi.....	150,000.00		52,619.26
Texas.....	78,217.00		135,544.41

¹ Includes nursery inspection; greater portion of fund spent for citrus canker eradication.

Definite estimates covering personal contributions not available.

The CHAIRMAN. You mention in the note the question of eradication—that in the Eastern States it is practically completely eradicated. If that is the case, it seems to me \$109,720 is a large appropriation. We have appropriated \$876,320 to date for this work. You are now asking for \$109,720 in addition for next year. We appropriated the amount at first with the view of stamping out the disease immediately, and we hoped we would not be asked for any further appropriation. Will the \$109,000 be required after all this year's amount is expended?

Mr. JONES. It is proposed to use \$86,720 of that amount for salaries!

Dr. KELLERMAN. This work, from the very beginning, has been largely a question of salaries and traveling expenses. We have put our men in the field and had them examine the orange groves, locate the disease, and report the disease to the owner and to the State authorities.

The CHAIRMAN. How much did you spend for labor?

Dr. KELLERMAN. We spent about one-tenth of the appropriation for labor.

The CHAIRMAN. The question is, Will you need the \$109,000? Will you need that much?

Dr. KELLERMAN. My guess would be that we will spend about \$95,000, if we have no setbacks. We should have a small reserve for emergencies.

The CHAIRMAN. How much will you spend this year?

Dr. KELLERMAN. We will spend about \$180,000 this year.

The CHAIRMAN. How much of this has been turned into the Treasury from year to year?

Dr. KELLERMAN. We have usually used the whole amount; last year we did not. I would like to explain that \$430,000. A quarter of a million was asked for in the agricultural appropriation act. The extra recommendation of \$180,000 in the urgency deficiency bill was made because of an unusually rapid spread of the disease caused by severe tropical storms. Additional money was therefore needed at that particular time. Aside from that, the estimates of the department have been very close to the necessary expenditures throughout. I would hate to see this reduced.

Mr. JONES. In 1919 your appropriation was \$250,000 and you expended \$207,000 in that year?

Dr. KELLERMAN. Yes.

Mr. JONES. That left a margin of about \$40,000.

Dr. KELLERMAN. Yes.

Mr. JONES. And the following year your estimate was for \$196,000?

Dr. KELLERMAN. Yes, sir.

Mr. JONES. I presume that \$40,000 went back into the Treasury?

Dr. KELLERMAN. It went back into the Treasury.

Mr. JONES. That is the reason you reduced your estimates to \$196,000 the following year?

Dr. KELLERMAN. Yes, sir.

Mr. JONES. Then there was very little reduction in these two years from the actual amount of money expended?

Dr. KELLERMAN. Very little.

Mr. RUBEN. My recollection is that when we started out to fight this disease it was estimated that it would cost us something like \$4,000,000 to get rid of it?

Dr. KELLERMAN. Yes, sir.

Mr. RUBEN. We are getting rid of it at a cost of about a million dollars, so that we are three million ahead, and I think we are doing pretty good work.

Dr. KELLERMAN. I think so. I think the work is progressing more favorably than anybody thought it could.

Mr. HEFLIN. You said Alabama had spent only about \$5,000 in this cooperative work. Is it not a fact that the citrus-fruit area in Alabama is very small compared with that in some of the other States?

Dr. KELLERMAN. That is true. At the same time, it is a very promising industry in two large counties.

Mr. HEFLIN. Baldwin and Mobile?

Dr. KELLERMAN. In Baldwin and Mobile Counties. It is now developing there into what looks like a very promising and helpful industry. It did not look as though it could develop when the canker began to make inroads into new plantings in that region. The citrus industry in that region was looked upon as probably gone when the disease first started.

Mr. HEFLIN. Is there very much of this canker there now?

Dr. KELLERMAN. I think there is practically none in commercial plantings, except in a few abandoned plantings—plantings that were so severely damaged by storms a few years ago that they were neglected and allowed to go wild.

Mr. HEFLIN. You expect to eradicate it entirely?

Dr. KELLERMAN. I think we will be able to do it in a very few years now.

Mr. McLAUGHLIN of Michigan. Have you found any of it in California at all?

Dr. KELLERMAN. No, sir.

Mr. McLAUGHLIN of Michigan. Have you employed any bureau men there to search for it?

Dr. KELLERMAN. Yes, sir. We have had a few men searching in that State. We have depended mostly, however, on the collection of specimens by State men and having them sent to us for examination.

Mr. McLAUGHLIN of Michigan. Do you find the growers of oranges and other citrus fruit in California alive to the situation?

Dr. KELLERMAN. Very much so. California authorities, with the cooperation, I think very effective cooperation, of the railroads and all common carriers, have quarantines preventing the movement into California of any nursery stock or even fruit from the areas that are diseased.

The CHAIRMAN. We will take up the next item. Thank you, Dr. Kellerman.

STATEMENT OF DR. WILLIAM A. TAYLOR, CHIEF OF THE BUREAU OF PLANT INDUSTRY, DEPARTMENT OF AGRICULTURE—Continued.

Dr. TAYLOR. Just before passing, Mr. Chairman, I would like to have the committee realize what the work under this citrus canker item means.

The CHAIRMAN. I think we understand the importance of it, Doctor.

Dr. TAYLOR. It means that for the first time in the history of the world, so far as we have information, a plant disease that had acquired a widely scattered foothold in an environment that was favorable to it is in prospect of eradication; and it means millions of dollars to the country if we can complete it along the lines that are being followed. We are still, however, in somewhat the situation of a forest-fire condition during a dry time. If there are scattered smoldering bonfires, a high wind may spread them and require quick action on a fairly large scale to prevent disaster to the industry. We

believe it is in the interest of real economy to have a sufficient amount available to meet such an emergency.

The CHAIRMAN. Item No. 82 is "for the investigation of diseases of forest and ornamental trees and shrubs," etc.

Dr. TAYLOR. There is no change, Mr. Chairman, in this item. Do you care to discuss it?

The CHAIRMAN. You might state briefly what you have been doing and what you propose to do.

Dr. TAYLOR. This is an investigational work on diseases of various fruit trees, including such investigational work as a study of parasitic fungi causing the chestnut tree bark disease, the white pine blister rust, and other epidemic tree diseases. Chiefly, the investigational work is concentrated upon the white pine blister rust disease at this time. That is a serious, menacing problem still, in the white pine territory.

Mr. McLAUGHLIN of Michigan. I thought you had given up that chestnut blight investigation.

Dr. TAYLOR. We are still continuing certain investigational work upon that disease.

Mr. McLAUGHLIN of Michigan. How much are you expending?

Dr. TAYLOR. About three or four thousand dollars, I should say.

Mr. McLAUGHLIN of Michigan. For what purpose? What kind of investigations are you making?

Dr. TAYLOR. Experimental research. Our investigators have not given up hope of ultimately accomplishing some form of control or prevention of that diseases, through the breeding of resistant types that will afford us a supply of nuts, or possibly even the development of timber types that will replace the native species which is susceptible to the disease.

Mr. McLAUGHLIN of Michigan. The chestnut is not a nursery stock at all, is it? It is one of our native forest trees?

Dr. TAYLOR. There has been developed quite a large orchard industry in chestnuts in the Eastern States.

Mr. JONES. Does it form a nursery stock in the East?

Dr. TAYLOR. In the Alleghany region, generally.

Mr. McLAUGHLIN of Michigan. For the benefit of Mr. Jones, I will say that the State of Pennsylvania used to spend a great deal of money on the chestnut bark disease, both independently and in cooperation with the Department of Agriculture. The State of Pennsylvania came to the conclusion, however, that the disease could not be stamped out, and that the only thing to do was to destroy the trees, and that it was just a matter of spending money and employing labor; so they cut off the appropriation and stopped doing the work.

Dr. TAYLOR. That is true. The chestnut timber stand of the country is doomed. The timber interests and the tanning interests know they have to face that destruction.

Mr. JONES. The tanners can get along without it.

Dr. TAYLOR. This map gives the best forecast we can make of the destruction of the native chestnut timber area. Based on a reconnaissance made this year, the destructive frontier of the disease at the present time is roughly indicated by this line dated 1920. The rate of progress, based on past experience, will carry that destructive frontier to this point in 1925 [indicating on the map], to this

point in 1930, to this one in 1935, and to this one, which will cover substantially the heavy chestnut stand, by 1945. This reconnoissance has been made in order that the owners of chestnut timber—and it is the big and important timber in this southwestern portion of the Appalachian system generally—may know what they have to expect.

Mr. JONES. There is nothing north of the Pennsylvania line?

Dr. TAYLOR. No; that they may wisely and steadily market their stands in advance of their spoilage by the disease. It is an illustration of a plant disease which, had we possessed a plant-disease survey and \$15,000 of money at the time it first came to our attention, could have been eradicated before it got outside of western Long Island and Manhattan Island. We had no quarantine act then, and the disease got in from Japan. No such disease was known to exist. It got a foothold before we had a knowledge of its existence. A fight was made to control it, and the fight failed. There is, however, every reason to expect that it may be possible to develop resistant strains that will be profitable as nut-producing trees; and there is a possibility that there may be developed strong growing strains of oriental origin, derived from a Chinese species, which we are now experimenting with, that may, to an extent, replace, 50 years from now, the chestnut, which has been a very valuable timber tree.

Mr. HUTCHINSON. Is that timber good for any purpose after it dies?

Dr. TAYLOR. The sapwood rots rather promptly, so that it needs quick cutting after two or three years' attack. It may help the committee to remember also that all the forest-tree disease work of the Federal Government is comprised in this item. The Forest Service calls on the Bureau of Plant Industry for the investigation of each tree disease that requires attention, the Bureau of Plant Industry's laboratories being considered the right place for that work to be done.

The CHAIRMAN. What is your next item, Doctor?

Dr. TAYLOR. Item 83, "for applying such methods of eradication or control of the white-pine blister rust as in the judgment of the Secretary of Agriculture may be necessary," etc. For this work no increase is estimated.

The CHAIRMAN. How much did you expend this year?

Dr. TAYLOR. The expenditure for this year is the amount shown—\$220,728. That will all be required for this fiscal year. This work is cooperative with the States of the white-pine territory, New England, New York, and, to some extent, Pennsylvania, and in particular Wisconsin and Minnesota, where there are large stands of white pine and where there is at the present time a serious situation with respect to this disease.

Mr. LEE. I think I read in some eastern paper the other day that you had made good progress, the State and the Government, in New York State. Is that true?

Dr. TAYLOR. Very distinct progress has been made in the direction of working out a practical method of control of the disease, its eradication apparently not being possible.

Mr. ANDERSON. Has it spread any from the area to which it was confined last year?

Dr. TAYLOR. Not materially, I think, Mr. Anderson, this year. This situation has developed, however, in Wisconsin and Minnesota, that the disease has been discovered in the backwoods and back country, where it was not known a year ago to be.

Mr. ANDERSON. Is it supposed that it is a new and recent infestation, or is presumed to have been there for some time without being known?

Dr. TAYLOR. That is an old infestation that apparently was due to importing nursery stock, little pine trees that were shipped in years ago and planted in reforestation activities, which harbored the disease, although they did not disclose it for several years.

Mr. JONES. This does not go from pine to pine?

Dr. TAYLOR. It goes from pine to currant and gooseberry, and then from currant and gooseberry eventually back to pine.

Mr. JONES. But it must have this intermediary?

Dr. TAYLOR. Yes; so that its control requires practically the elimination of currants and gooseberries, cultivated or wild, throughout the forest area and for a considerable distance outside.

Mr. JONES. Is not the only answer to it the destruction of the currant and gooseberry production?

Dr. TAYLOR. We think so. It is the wild ones that cause the greatest difficulty.

Mr. JONES. Yes; but the tame ones harbor it, too.

Dr. TAYLOR. Yes; but they could be eliminated more easily and more quickly. The tough point in it is the eradication of the wild currants and gooseberries.

Mr. JONES. Have there not been thousands of dollars worth of currant and gooseberry bushes, cultivated berries, destroyed in New York State?

Dr. TAYLOR. There have been considerable quantities, and the State now forbids, in certain specified areas, the planting of currant and gooseberries where pines would be endangered; that is, where commercial pine plantings would be endangered by the presence of those shrubs. The States are attacking it; they are cooperating with us; and they are spending large sums of money and enforcing; that is, trying out each reasonable suggestion that is made. We are on the firing line with respect to this disease. The country is fortunate in the fact that the disease has not reached the western area of five-leaved pines, which include now the largest stand of pine timber that would be susceptible to it.

Mr. McLAUGHLIN of Michigan. By the western area you mean the far West?

Dr. TAYLOR. Yes, sir.

Mr. McLAUGHLIN of Michigan. Where the Government owns national forests?

Dr. TAYLOR. Where the national forests are and where large areas are under private ownership, also. The Government has that big asset in this and we are maintaining a scouting service there. Until we know that there is not a diseased pine or currant or gooseberry west of the one-hundredth meridian, we can not be sure that that big national asset is safe. We ask that this work be continued on its present scale.

The CHAIRMAN. You ask for no increase?

Dr. TAYLOR. No, sir.

The CHAIRMAN. Just transfers?

Dr. TAYLOR. Yes, sir. The next is item 84, on page 74, "for the investigation of diseases of cotton, potatoes, truck crops, forage crops, drug and related plants, \$108,900." There is an increase of \$23,500 for projects in this field. This money is desired specifically, \$10,000 for investigating potato diseases. One of these, which is troublesome, stubborn, and menacing, is the potato wart disease, which is in very restricted areas in this country, so far as is known—in Pennsylvania and West Virginia. The disease is very destructive and troublesome in European countries. It has been so damaging in Britain that for many years they have prohibited the planting of potatoes other than resistant varieties in soils infected with this disease. When the war emergency arose, as I discovered last year when over there, it was found necessary for the Government to step in and have grown under contract seed potatoes of resistant varieties, to furnish to the farmers owning infected soil, in order to maintain a normal supply of this important food crop.

Mr. McLAUGHLIN of Michigan. Have they a resistant seed that can be planted in an infected soil and still not show the disease in the crop?

Dr. TAYLOR. They have developed, in Great Britain in particular, certain varieties that are good varieties for them, good yielding and good quality varieties, that resist the disease sufficiently to make a good crop. That is the last line of defense in this proposition, if we should not succeed actually in eradicating the disease and so be free from the possibility of a spread in a destructive way in this country.

Mr. McLAUGHLIN of Michigan. You spoke of a resistant soil?

Dr. TAYLOR. I mean infected soil, Mr. McLaughlin. It is a soil-infecting disease. It got into this country through the use for seed of large shipments of European potatoes that came in about 1912, I believe it was, when we had a short potato crop and cargoes of British potatoes were imported. Some of those were planted for seed, particularly by miners in the mining villages in Pennsylvania and, to some extent, in West Virginia. Fortunately the infection so far is restricted to those relatively noncommercial areas.

Mr. LEE. Is not this the same disease that came over the Canadian border and appeared in Maine?

Dr. TAYLOR. No; it did not get into the Maine crop. They have it over in portions of Canada, but our quarantine law was enacted in time to exclude, as it does now, and to protect us against the reimportation of the seed.

Mr. McLAUGHLIN of Michigan. Can you tell us, briefly, how you combat it?

Dr. TAYLOR. The methods of attack so far is proceeding along three lines, and it is experimental. First, of course, is the complete destruction of the growing crop and keeping potatoes off that land for an indefinite time. It is not known how long the infection endures in the soil. The practicability of this method depends on the willingness of the owner or occupier of the land to do that thing. Second, the actual disinfection, through steam, or with formaldehyde or some similar material, forced into the soil to a sufficient depth to kill out the infection.

Mr. McLAUGHLIN of Michigan. Steaming and applying formaldehyde to the soil?

Dr. TAYLOR. Steaming the soil under large inverted pans, such as tobacco growers use for a similar purpose. This is a garden proposition primarily.

Mr. McLAUGHLIN of Michigan. It would have to be a pretty small garden proposition to permit of that remedy.

Dr. TAYLOR. That is true. Practically it is the application of the method which the tobacco growers use in certain sections to sterilize the plant beds in which they grow their plants for the open field.

Mr. McLAUGHLIN of Michigan. That might be very interesting as an experiment, but how about the practicability of it?

Dr. TAYLOR. We are not far enough along in it yet to report specifically, but the question may probably arise, will it be better for the State of Pennsylvania to actually clean up a few acres of land and be sure there is no infection which could spread to her commercial potato territory, even though that cost several hundred dollars an acre?

Mr. McLAUGHLIN of Michigan. What is in the nature of cleaning up—to get a resistant seed?

Dr. TAYLOR. No, sir; to eliminate this disease from the United States and be sure it can not spread to our important commercial territory. It is just like the question of what expense would be justified in clearing up one village that was infected with bubonic plague.

Mr. McLAUGHLIN of Michigan. They do that by destroying the growing crop entirely and by refusing permission to plant or re-planting from replanting on that soil?

Dr. TAYLOR. That is one method that is under test.

Mr. McLAUGHLIN of Michigan. That is the way the locality could be cleaned up; but it would seem to me that that could not be done on any large scale at all. You could not clean up an area by that method, could you?

Dr. TAYLOR. Fortunately, the areas are not large. In the West Virginia territory as it stands, where the infected area amounts to a few acres only (I do not recall the exact acreage), it might easily pay to spend \$500 an acre in sterilizing these areas and so eliminate the possibility of millions of dollars of damage in the commercial territory if the disease should get over from the present infected area. If we were in a position to say to you, "Gentlemen, \$100,000 would clean out this disease from 100 acres of land, and it is restricted to that area, we would not hesitate to recommend it as a good investment for the country. The investigation has not proceeded far enough, however, to make that recommendation.

Mr. McLAUGHLIN of Michigan. By experimentation, you have found that the land can be treated successfully in that way?

Dr. TAYLOR. We are experimenting in an effort to determine whether it can be disinfected deep enough by the use of practical devices already in use for other crops.

Mr. McLAUGHLIN of Michigan. I do not want to take up too much time.

Dr. TAYLOR. It is an important question.

Mr. McLAUGHLIN of Michigan. But you spoke about steaming the land.

Dr. TAYLOR. Yes, sir.

Mr. McLAUGHLIN. How in the world do you do that over a large area?

Dr. TAYLOR. Area by area, with shallow box pans inverted so that they are kept filled with steam, which works down into the soil, as has been demonstrated to be thoroughly practical in the tobacco industry for restricted areas. It is a method followed by the Connecticut tobacco growers, and to a considerable extent in Tennessee, also—a method which was developed by the department some years ago.

Mr. McLAUGHLIN of Michigan. The formaldehyde treatment of the soil that is simply—

Dr. TAYLOR. That is used in combination with the steam in the same way, so as to force it into the soil.

Mr. JACOWAY. Has your attention been called to a disease which attacked the potato slip in the South in July or August?

Dr. TAYLOR. The sweet potato?

Mr. JACOWAY. Yes, sir.

Dr. TAYLOR. Yes, sir; there are several such that are worked on under this same appropriation.

Mr. JACOWAY. Could that be eradicated by treatment of the soil or treating the plant?

Dr. TAYLOR. The disease you have in mind, I think, is one which is traceable to an infection in the sweet potato that is bedded for seed.

Mr. JACOWAY. Will the certified seed potato prevent that?

Dr. TAYLOR. If the certification is thoroughly efficient; that is, if your seed is clean.

Mr. JACOWAY. Here is the trouble, and especially in my county: Last year and also to a lesser extent the year before the growers found in August that the plant shriveled and died; and when they pulled it up they found it infected, I think, with some kind of a wart on it. Is that trouble inherent in the soil or can it be prevented through buying the proper kind of seed potatoes when they are bedded out?

Dr. TAYLOR. The disease to which you probably refer is sweet potato stem rot, sometimes called the wilt. It occurs in Arkansas and is very serious in some parts of the State on the Nancy Hall variety, which is about the only variety grown to any extent in the State which is susceptible to the disease. The organism causing this disease lives over the winter in potatoes in storage in the soil, and on dead debris in the field. If infected potatoes are used for seed, the young plants produced from them may become diseased. Infected plants taken from seed beds usually show very characteristic symptoms of the disease in the field in about 10 days to two weeks after being planted. Much can be done toward the control of stem rot by the selection of sound seed and the improvement of propagating methods through the use of clean soil, seed disinfection, etc. The problem of field infection remains to be met by rotation of crops or the substitution of wilt-resistant varieties, like Porto Rico.

It is possible that some of the trouble to which you refer is black rot, a disease which is also prevalent in Arkansas. This is more evident in the seed beds and does not appear so soon in the fields after the plants are set out. Black rot attacks all varieties of sweet potatoes, so far as we know, but can be controlled very satisfactorily by

the use of clean seed, seed treatment, and hot-bed sanitation, as fully set forth in Farmers' Bulletin No. 1059.

Mr. CANDLER. You said there was a third remedy of some kind.

Dr. TAYLOR. The third and last line of defense of a disease like the potato wart is resistant varieties which, while not completely immune to the disease, can be grown with fair success in the presence of the disease. We are testing all the American varieties and are bringing in the European immune varieties in an effort to determine whether some of them could be grown on these infected soils safely. Certain of our American varieties are promising in that respect and we have more to expect, I think, from them than we have from the imported immune varieties, for the European varieties have been developed with reference to the European soils and climatic conditions, and very few of them ever really behave well in our more fluctuating and extreme climate.

Mr. CANDLER. Are these resistant varieties as nutritious and otherwise as good as the other varieties?

Dr. TAYLOR. As grown under their soil and climatic conditions, yes.

Mr. CANDLER. Do ours meet the same standard here?

Dr. TAYLOR. Yes; I should say so.

Mr. CANDLER. To make them resistant does not make them tough and hard to use?

Dr. TAYLOR. No; the question primarily is whether they will succeed on infected soil under our conditions.

Then there is a group of very difficult diseases of potatoes to an extent characterized by the general term of "mosaic diseases," on which we need to increase our work. These are particularly troublesome in the large commercial territory of New Jersey, on Long Island, N. Y., in Aroostook County, Maine, and in the irrigated territory of the West.

Mr. HUTCHINSON. In New Jersey last year we had a disease of some kind from which we lost about 50 per cent of the potatoes. They would rot right in the field. What was the cause of that? Was that caused by a disease or was it due to the weather?

Dr. TAYLOR. That was probably late blight, which is controllable by sprays. That is, within a reasonable extent, thoroughly satisfactory methods of control by spraying have been developed.

Mr. HUTCHINSON. These potatoes were dug and shipped, and a great many hundreds of cars were lost on the railroad; and after a while, if left in the field, they stopped rotting. The loss from this rot was about 50 per cent. A great many people said it was due to the heavy rains. I would like to know what you think it was, whether it was the heavy rains, blight, or what is was.

Dr. TAYLOR. Of course, a soggy condition of the soil during the latter part of the potato season makes certain considerable rot in the crop, whether in transportation or in storage, due to the fact that it carries into every cut and bruise and wound that the potato suffers every fungus or bacterium that is there that can attack and produce decay in the potato.

Mr. HUTCHINSON. There was no prevention for the weather.

Dr. TAYLOR. No; the weather damage occurs if a potato crop stands in a soggy soil for weeks at a stretch, as sometimes occurs in almost every section of the country.

Mr. JACOWAY. Did your potatoes have warts all over them?

Mr. HUTCHINSON. No; they were smooth and nice.

Dr. TAYLOR. Our second item under this paragraph, for which we need funds, is \$3,500 for the investigation of the eelworm disease of red clover.

The CHAIRMAN. This is new, is it?

Dr. TAYLOR. It is new to this country and, so far as we know, is in the main confined to Idaho, although some specimens have been received from the State of Washington.

The CHAIRMAN. Have you made a study of the disease?

Dr. TAYLOR. A preliminary study was begun as soon as the nematode which evidently causes it was found on the roots of the clover plants.

The CHAIRMAN. It covers a large area?

Dr. TAYLOR. We do not know yet how large an area is covered.

The CHAIRMAN. At any rate, it is of importance and should be investigated?

Dr. TAYLOR. It is a matter of fundamental importance for the reason that these nematodes have been found alive on clover seed from this territory, and this is an important clover-seed producing territory.

The CHAIRMAN. You think it is possible to exterminate it?

Dr. TAYLOR. We do not know yet, sir. We must know more of the habits and life history of this nematode.

The CHAIRMAN. You speak of a large area; what do you mean by "large area in Idaho?" Do you mean that it covers several townships, counties, or what?

Dr. TAYLOR. It is scattered through certain irrigated districts. We do not know its limits; we have not had the funds with which to make a survey.

The CHAIRMAN. To what extent is the crop destroyed?

Dr. TAYLOR. The crop in extreme cases is practically entirely destroyed. The trouble was until recently confused with winterkilling. The clover stand was gotten and the crop seemed to be coming along fairly well, then it began to yellow and the roots went bad, and finally it was found that there were these minute eelworms on the roots.

The CHAIRMAN. Just in spots or in the whole field?

Dr. TAYLOR. Just in spots, as a rule, but frequently spreading to the whole field, and apparently easily transported in the irrigation water and, therefore, dangerous. I wish to make this point, further: If that thing is transported through clover seed, then look out in the Middle West and the rest of our country, for much of our clover-seed supply is coming from the irrigated territory.

Mr. ANDERSON. There is no quarantine against the shipment of clover seed from this territory, is there?

Dr. TAYLOR. No, sir; and we do not know if this thing would live in Minnesota and be destructive—or in Illinois or in Virginia. It is a new problem.

The CHAIRMAN. Your next item is for \$10,000?

Dr. TAYLOR. The final item of increase of \$10,000 under this sub-appropriation is for pathological inspection of vegetables in processes of marketing.

The CHAIRMAN. In cooperation with the Bureau of Markets?

Dr. TAYLOR. Yes, sir. This is exactly comparable with the pathological inspection of fruits, for which an increase was requested under item 80.

The CHAIRMAN. How many items have you in your bureau now in cooperation with the Bureau of Markets?

Dr. TAYLOR. These are the two of this character. We cooperate with the Bureau of Markets on several kinds of work. We do technical research work for them.

The CHAIRMAN. Is that paid for out of the funds of your bureau?

Dr. TAYLOR. Yes, sir.

The CHAIRMAN. In all instances?

Dr. TAYLOR. Except in cases where an emergency comes up that requires immediate attention where, if we have not the funds and the Bureau of Markets has the funds temporarily available, we ask them to carry that.

The CHAIRMAN. Will you furnish the committee with a statement giving the number employed and the amount of money expended in cooperation with the Bureau of Markets?

Dr. TAYLOR. We can do that; yes.

The CHAIRMAN. Can you approximate the amount now?

Dr. TAYLOR. I could not offhand; no, sir. It is several relatively small items. I will have that inserted in the record.

(The statement referred to follows:)

Cooperative pathological inspection work between the Bureau of Plant Industry and the Bureau of Markets.

Line of work.	Number of employees.	Expenses.
Pathological inspection of fruits during processes of marketing.....	1	\$3,460
Pathological inspection of vegetables during processes of marketing.....	4	7,440
Total.....	5	10,900

¹ It should be pointed out that, while the pathological section of the cooperative work with the Bureau of Markets on this project is being carried on actively by the Bureau of Plant Industry, the Bureau of Markets side of the cooperation is temporarily suspended owing to a lack of funds.

The CHAIRMAN. Could not some arrangement be made whereby the appropriation could be made direct to one bureau and not be split up between a number of bureaus of the Department? I appreciate that you have the experts and very probably you should do the work we would like to keep track of it and know the amount expended for each unit or each project.

Dr. TAYLOR. We practically have to administer the technical work, the technical pathological work, in the Bureau of Plant Industry.

The CHAIRMAN. Could not that amount be paid out of funds of the Bureau of Markets and still be under your supervision and control?

Dr. TAYLOR. If it would insure full responsibility and clearer understanding. It strikes me it would be rather more difficult, however, for me to administer a portion of the Bureau of Markets fund than it would be for me to keep track of an appropriation which I control and administer.

The CHAIRMAN. Have you conferred with the Bureau of Markets about that feature?

Dr. TAYLOR. Yes; repeatedly; and the principle which is agreed to throughout the department service is that the funds should be in the place where the administrative responsibility rests. The only exceptions are in cases where temporary emergencies have to be met.

The CHAIRMAN. The situation is this: A great deal of activity is carried on by your bureau and the other bureau takes the credit for the work.

Mr. TAYLOR. Oh, I think they are fairly generous in respect to the credit.

The CHAIRMAN. I have reference to the reports made to us, from which it would appear that small appropriations were made and great results were obtained from the small appropriations.

Dr. TAYLOR. If these funds are provided for the Bureau of Plant Industry, we will be sure to get the credit for the work which we do; and, as we are responsible for the work which we do, we believe we should have these funds.

The CHAIRMAN. I think we all agree that we should have some check upon these appropriations and know exactly what is being spent for each project, without going through all the bureaus. If all the work on one project could be carried under one head—

Dr. TAYLOR. Yes; but this is a pathological activity which should be reflected back in the most direct way possible to the production end of the field, in our judgment.

The CHAIRMAN. If we eliminated the words "in cooperation with the Bureau of Markets," you could still cooperate with the Bureau of Markets, could you not?

Dr. TAYLOR. Oh, yes.

The CHAIRMAN. Why are the words "in cooperation with the Bureau of Markets" inserted?

Dr. TAYLOR. I do not know, unless in this particular case it might be more easily understood.

Mr. HARRISON. There is no necessity for that language; it is put in there merely to indicate that the work is to be done cooperatively.

Mr. LEE. It does not do any harm, does it?

The CHAIRMAN. I want to get it into the record, is all.

Mr. McLAUGHLIN of Michigan. Can you tell us, briefly, just what you do?

Dr. TAYLOR. Yes, sir; and I will illustrate that with this exhibit of material [showing pamphlet], prepared in connection with this work, which is accessible to the whole Bureau of Markets force and which, incidentally, I might say, the produce industry is urging us to publish in some way so that it will be available to all the people rather than merely to our inspectors.

Mr. McLAUGHLIN of Michigan. Your work is purely investigational?

Dr. TAYLOR. Investigational and educational.

Mr. McLAUGHLIN of Michigan. As I understand it, you instruct those people?

Dr. TAYLOR. Yes, sir. This is investigational and educational; not regulatory at all. Our men diagnose the diseases of vegetables which the Bureau of Markets inspectors can not accurately determine. They determine the causes of deterioration which are trace-

able to bad handling, improper packing, improper loading in the cars, improper grading, and so forth. In numerous cases, however, the question arises, "Is the rotten condition of this carload of potatoes due to bad handling, or is it due to some particular disease which may have affected the crop in the field and which should have been controlled in the field?" Those in the produce trade do not know; they call rots "rots." In many cases the farmers themselves do not know. Nobody knows all the diseases of these crops. Our men diagnose as accurately as may be and instruct the inspectors as to these diseases, prepare information which they can steadily have at hand for reference, like these colored illustrations, descriptions, and so forth, and maintain that supervisory relation to their technical work which is required.

The CHAIRMAN. Your investigational research work is independent of the Bureau of Markets?

Dr. TAYLOR. Yes, sir.

The CHAIRMAN. You disseminate the information and educate these people employed by the Bureau of Markets?

Dr. TAYLOR. Yes, sir; and immediately a new disease or epidemic development of an old disease occurs, our men reports back to our investigational office here and, if there is some feature of that which needs attention in the field or in the laboratory, he can get it instead of waiting some time perhaps a year from now.

The CHAIRMAN. You advise the inspectors of the Bureau of Markets?

Dr. TAYLOR. We advise their inspectors and carry it back into the field to the farmers where the crop grew.

Mr. CANDLER. The object is to determine the source of the trouble?

Dr. TAYLOR. Yes, sir.

Mr. CANDLER. And whether it starts at the source of production, on the farm, or whether it arises from improper methods of handling or transportation?

Dr. TAYLOR. Yes, sir.

The CHAIRMAN. We will take up your next item.

Dr. TAYLOR. The next item which carries an increase is No. 86, on page 76, "for soil-bacteriology and plant-nutrition investigations," in which we ask for \$49,060, an increase of \$10,000 over the current appropriation. This is desired for use in the enlargement and broadening of crop rotation studies in which fertilizer applications, in particular, are involved. It is aimed primarily at the solution of the problem of crop relationships, or crop successions—the effect of one crop upon the succeeding crop, which, under fertilizer farming in particular, is often very important. It is an attack upon a fundamental of crop rotation practice.

Mr. JACOWAY. Why do you need \$10,000 more?

Dr. TAYLOR. To broaden the work; to include more crops under more conditions than we are able at present time to carry on. That work has so far been restricted practically to crops used in rotation with tobacco.

The CHAIRMAN. Is this work done in cooperation with the Bureau of Soils?

Dr. TAYLOR. No, sir; except in an informal advisory relationship. This is a plant-nutrition problem.

The CHAIRMAN. There is a line of demarcation, then, between the two?

Dr. TAYLOR. Yes, sir; one that is clearly recognized and, I think, entirely satisfactory to both bureaus.

Mr. HUTCHISON. Is not the Bureau of Soils doing the same kind of work?

Dr. TAYLOR. No, sir; not at all. No other element of the department is doing the same kind of work.

The CHAIRMAN. You might point out what part of the work you conduct on fertilizer.

Dr. TAYLOR. The Bureau of Soils studies fertilizer resources and fertilizer composition, the chemical composition of fertilizer; the Bureau of Plant Industry studies the effect of fertilizers upon crops.

Mr. McLAUGHLIN of Michigan. This would have to be done in a practical way—to try out the fertilizer and try out the rotation, would it not?

Dr. TAYLOR. Yes, sir.

Mr. McLAUGHLIN of Michigan. Where do you do that?

Dr. TAYLOR. So far, we are doing it chiefly at a field station (the tobacco crop is the main crop) maintained in the State of Maryland. We call it a field station; it is a farm, and it is jointly handled by the Maryland Agricultural Experiment Station and the Bureau of Plant Industry. It is a farm upon which there are the usual farm buildings—all that are necessary for work of this character.

Mr. McLAUGHLIN of Michigan. You carry on your experiments on that farm?

Dr. TAYLOR. Yes, sir.

Mr. McLAUGHLIN of Michigan. How is the Bureau of Soils to ascertain the value of the fertilizer except from you?

Dr. TAYLOR. In so far as the value of the fertilizers upon crops is concerned, the responsibility rests on the Bureau of Plant Industry.

Mr. McLAUGHLIN of Michigan. And it gets its information from your bureau?

Dr. TAYLOR. Yes, sir; but we, in turn, get our information regarding chemical composition, sources from which the material can be obtained, etc., from the Bureau of Soils.

Mr. McLAUGHLIN of Michigan. And the results of those differ?

Dr. TAYLOR. Yes, sir.

Mr. HUTCHINSON. Have you had any experiment with potashes this year—Nebraska potashes and local potashes?

Dr. TAYLOR. Yes, sir.

Mr. HUTCHINSON. How do they compare with foreign potashes?

Dr. TAYLOR. We are not comparing them with foreign potashes, because we have not been able to get them this year.

Mr. HUTCHINSON. You used to get them?

Dr. TAYLOR. Yes. There is a very serious problem in that connection which is indicated in our next item here, item 87, on page 78, for soil-fertility investigations.

Mr. McLAUGHLIN of Michigan. Speaking of the value of the fertilizer, most of us are more interested in the cost of it. The cost has gone way up in the air.

Dr. TAYLOR. This item 87, "for soil-fertility investigations into organic causes of infertility and remedial measures," etc., includes

an increase of \$20,000. This increase is needed to meet a very rapidly increasing demand for information regarding the usefulness of new fertilizer materials. The world shortage of fertilizer materials has resulted in the combing of the world for things that might possibly have value as fertilizers. Prices are high for most of the materials; they are very high; but that is not the worst of it. In certain of these materials, toxic elements exist which, while not known to be there until this last growing season, have caused serious damage to the crops. As soon as there was knowledge that there was probable danger, the bureau undertook a series of experiments with potashes found to contain percentages of borax, the results of which we are about ready to publish in so far as the experiments of this year are concerned. Briefly summarized, the situation may be understood perhaps through the examination of some of these photographs which show the effect of fertilizers now known to have contained borax [submitting photographs].

Mr. CANDLER. Some of these fertilizers that are being used are really injurious then, rather than beneficial?

Dr. TAYLOR. Yes, sir.

Mr. CANDLER. And you are trying to find out the injurious ones so as to discriminate between them and the beneficial ones?

Dr. TAYLOR. Yes, sir; the one which is known to have caused the greatest destruction is borax. From one potash-producing section of the country, the Searles Lake region of California, the potash output has been, under earlier methods of production, seriously contaminated with borax. Some of that potash was applied to cotton and tobacco and other crops in the South this year, in South Carolina and North Carolina, with disastrous effects. Some of it got on to the potatoes in Virginia, New Jersey, New York, and Maine. The experiments which these photographs illustrate have developed the fact that very minute quantities of borax are destructive if applied in the hill or the drill and abundant rain does not come very promptly after the application to dissolve the borax and send it below the reach of the roots of the crop.

The CHAIRMAN. Are you making experiments and examinations as to the various sources?

Dr. TAYLOR. No; we are testing.

The CHAIRMAN. Have you any data on the subject?

Dr. TAYLOR. We are testing the effects on the crops.

The CHAIRMAN. Of potash from various sources?

Dr. TAYLOR. Yes, sir.

The CHAIRMAN. So that you can advise us from what source to get our supply?

Dr. TAYLOR. Yes, sir. This whole matter has become so serious that within the last 10 days the Secretary of Agriculture, acting under the war power, under the Lever act, has required all licensees under the fertilizer clause to indicate on the containers if there is more than one-tenth of 1 per cent of borax contained in that fertilizer, the percentage that it contains. That one-tenth of 1 per cent is an expression of our best judgment, with the facts we have at hand of the amount of borax that may be applied to crops without injury, which rests substantially on a single season of laboratory and field experimentation.

Mr. McLAUGHLIN of Michigan. More than that would be harmful?

Dr. TAYLOR. Under certain conditions. Three pounds of borax per acre has seriously damaged corn in Indiana this year where applied in a mixed fertilizer in the hill in the customary way.

The CHAIRMAN. In other words, you are standardizing fertilizer, are you not? You prohibit the sale of certain kinds?

Dr. TAYLOR. The Secretary, acting under the war power—

The CHAIRMAN. Yes; I understand.

Dr. TAYLOR (continuing). Which, of course, ends soon, has gone to the limit of his authority to protect the farmer and to protect the fertilizer industry as well (because what hurts the farmer kills the industry eventually), in order to steady this situation.

The CHAIRMAN. Then, in order to protect the use of fertilizer, is it necessary for the department to standardize the fertilizer?

Dr. TAYLOR. I would not say that yet.

The CHAIRMAN. You want to prohibit the use of certain injurious ingredients?

Dr. TAYLOR. Yes.

The CHAIRMAN. That can only be done by standardizing. How could you write into a law the ingredients that are to be prohibited unless you standardize the ingredients?

Dr. TAYLOR. Of course, that is a very complicated question when you go into it in all its ramifications. Heretofore there has been no Federal control whatever until the war emergency arose.

The CHAIRMAN. That control has ceased, we will say. Now, what are you going to do with this appropriation?

Dr. TAYLOR. Through this appropriation we hope to get at the facts which are required.

The CHAIRMAN. What are the results of the expenditures so far?

Dr. TAYLOR. All we have done so far, you understand, we have done by makeshift. This matter flashed up after the current year's appropriation was made, so that we have concentrated on it merely with the resources and the men we had.

The CHAIRMAN. You have had funds available and have given it considerable study in years past?

Dr. TAYLOR. We have made a beginning this year. No work was done on borax in fertilizers prior to this year.

The CHAIRMAN. By the department or any other agency?

Dr. TAYLOR. Neither by the department nor any of the different State experiment stations, nor, as far as we can ascertain, by the fertilizing industry. It is a new proposition.

Mr. JACOWAY. Then you have not enough information at hand in the department to say what is a standard fertilizer?

Dr. TAYLOR. Absolutely not.

Mr. HUTCHINSON. The borax can be taken out of the potash, can it not? They have a process for taking it out, have they not?

Dr. TAYLOR. Our understanding is that they are able to free potash of borax down to an average of about two-thirds of 1 per cent.

Mr. HUTCHINSON. Have you been before the Ways and Means Committee?

Dr. TAYLOR. No, sir.

Mr. HUTCHINSON. Don't you think it is wise for you to go there? They have a bill, you know, before the Ways and Means Committee

whereby we are compelled to buy so much of the local potash. I think it would do the farmers a great deal of good if you would make your statement to them.

Dr. TAYLOR. The feature which is most disturbing is this: That the potash supply that is in sight, available or obtainable, for use next spring mostly contains borax.

Mr. HUTCHINSON. We are getting some foreign potash now?

Dr. TAYLOR. Very little, so far as we have information.

Mr. McLAUGHLIN of Michigan. Does the foreign potash contain a little borax?

Dr. TAYLOR. None at all.

The CHAIRMAN. How much does the local potash contain?

Dr. TAYLOR. During the past year it has contained all the way from one-third of 1 per cent up to 6 per cent or 12 per cent, or probably, at the beginning of last spring, above 20 per cent in some cases.

The CHAIRMAN. You say from one-half?

Dr. TAYLOR. From one-third of 1 per cent to 20 per cent.

Mr. McLAUGHLIN of Michigan. We are getting potash now from several sources, some of which are comparatively new?

Dr. TAYLOR. Yes, sir.

Mr. McLAUGHLIN of Michigan. From what source do we get the most borax?

Dr. TAYLOR. We supposed, until three weeks ago, that it all came from the Searles Lake country, in California. It has developed that much has come in from Chile in the form of a so-called high nitrate potash, not imported prior to the war; a by-product of the nitrate of soda industry in Chile, which came in under the war demand for use in munitions. After the armistice was signed large stocks of this were available for use as fertilizer, which constitute one of the largest stocks of potash to-day. The extent to which that can be cleaned up or can be diluted down in the preparation of the mixed fertilizers, we can not say.

This further disturbing fact has developed also, that nitrate of soda as imported contains some borax, which was not known until within the last few weeks.

Mr. ANDERSON. Is it not a strange thing that no chemical analysis of a thing as universally used as this has been had which resulted in a discovery of this sort of situation?

Dr. TAYLOR. It is a most astounding situation. I am not a chemist, but it is fair to the chemical industry as a whole and to the experiment stations and fertilizer manufacturers to say that methods for the exact determination of borax have not existed. Its importance as a toxic element in fertilizer has not been realized. If anyone had told me a year ago that 3 pounds of borax per acre would have damaged a corn crop, I would not have believed it without experimental evidence.

Mr. CANDLER. Where is the danger line; you stated it a while ago?

Dr. TAYLOR. The danger line for application in the hill and drill is somewhere a little below 3 pounds per acre. We do not know just where it is.

Mr. JACOWAY. Won't it differ with different fields and different soils?

Dr. TAYLOR. Yes, sir.

Mr. JACOWAY. Then, can you arrive at a universal judgment as to how much to use?

Dr. TAYLOR. No, sir.

Mr. LEE. It would do little damage on a wet place?

Dr. TAYLOR. If you plant to-day and rain comes to-night, you are not likely to be harmed by considerable percentages; but we must know so that the farmer can be informed.

Mr. CANDLER. It is necessary to know the nature of the climatic conditions, the general average of the situation, and exactly where it is dangerous to use it at all?

Dr. TAYLOR. Yes; and where the danger lies with the condition of the soil, the character of the soil, whether a crop—

The CHAIRMAN. Does it affect the soil for a crop for more than one year?

Dr. TAYLOR. We do not know that. The general belief is that on leachy soils there is no important cumulative effect. But it is not safe to accept that as true until we have proved it.

Mr. RUBBY. You take a large field of tomatoes that has been fertilized, and the next year the same land is the finest field in the world for wheat.

Dr. TAYLOR. Yes; very excellent crops of wheat are grown in the canning country where tomato crops are followed by wheat.

Mr. McLAUGHLIN of Michigan. You are getting some potash now from the cement factories. Is borax found in that?

Dr. TAYLOR. Not so far as I have information. Dr. Whitney, of the Bureau of Soils, could give you more information on that question.

Mr. McLAUGHLIN of Michigan. Have you found borax in the potash made from kelp?

Dr. TAYLOR. No, sir.

Mr. HUTCHINSON. I understood you a while ago to say that the Government was going to issue an order to indicate the borax content on the bag?

Dr. TAYLOR. That order has been issued.

Mr. HUTCHINSON. How can you do that; under the war power?

Dr. TAYLOR. The war power requires the licensing by the Secretary of Agriculture of manufacturers and dealers in fertilizer, and they have been under license now for something like two years. They are subject, therefore, to the order of the Secretary.

Mr. HUTCHINSON. I realize that; but we all expect the war to be over now very shortly. Then what are you going to do for goods to be delivered next spring?

Dr. TAYLOR. We have gone as far as we can at this time, and we feel that we have driven a stake which is conspicuous and by means of which we can hope for recognition of the importance of this feature in the future.

Mr. CANDLER. After all these regulations expire all you could do would be to warn the people and give them information, so that they might avoid the danger themselves?

Dr. TAYLOR. Yes, sir.

Mr. CANDLER. This \$20,000 increase is for the purpose of securing information to advise the people?

Dr. TAYLOR. Yes, sir.

Mr. HUTCHINSON. I think you are doing great work, and that is the reason I wanted to know how you could force the manufacturers to put the contents on the bag, because I do not see how you can do it after the war stops.

Mr. LEE. The States can do it.

Mr. HUTCHINSON. The States can do it?

Dr. TAYLOR. Yes. Of course, at the present moment the war power continues, and the fertilizer for the spring application is now going into the bags. In fact, it is going on the land in the extreme South at the present time—in the Florida trucking region and in the southern coastal plain.

The CHAIRMAN. Is there anything to be studied concerning nitrogen or phosphoric acid?

Dr. TAYLOR. Nothing new, except in so far as their use is concerned.

The CHAIRMAN. Why could not a number of these items be consolidated? For instance, in dealing with fertilizer, why not put it all under one item?

Dr. TAYLOR. We feel, as the result of actually handling the men and work, Mr. Chairman, that in cases where the fertilizer feature is incidental to the other features involved, it is better to have that money there in that place.

The CHAIRMAN. But the segregation naturally incurs additional expense and overhead charges?

Dr. TAYLOR. No; because you must maintain the crop work with regard to which the fertilizer feature is but one element and in many cases an incidental element. It does not involve an increase of overhead at all under our form of organization; there is no duplication of experimentation and no duplication of personnel or expenditures.

The CHAIRMAN. But, when one is put in charge of a certain line of activity, it carries a little more importance and a little more salary.

Mr. LEE. That is not true, is it?

The CHAIRMAN. It gives a little more importance to the position.

Dr. TAYLOR. I do not think so.

The CHAIRMAN. Does it not add to the salaries?

Dr. TAYLOR. No, sir.

Mr. HUTCHINSON. Is your department trying to explain to people the difference in ammonia? For instance, there is from \$12 to \$14 a ton difference, depending on where you get the ammonia, whether from nitrate of soda, dried blood, fish scrap, or tankage. In other words, ammonia from tankage costs from \$7 to \$7.50, while nitrate of soda costs about \$3.

Dr. TAYLOR. Yes.

Mr. HUTCHINSON. Is your department explaining to the people the values of these different ammonias or not?

Dr. TAYLOR. The difference in money value?

Mr. HUTCHINSON. I mean the field value.

Dr. TAYLOR. The production value?

Mr. HUTCHINSON. The production value.

Dr. TAYLOR. Yes; to the extent that there is knowledge with respect to this difference. It is largely a question of the crop and of the—

Mr. HUTCHINSON. You know it is a pretty hard proposition now to go out and sell on a unit basis, when it varies from \$3.50 to \$7.

Dr. TAYLOR. Yes.

Mr. HUTCHINSON. And I think a fertilizer is no good unless it is made out of tankage; I would not give anything for fertilizer made entirely out of nitrate of soda.

Dr. TAYLOR. Yes.

Mr. HUTCHINSON. It seems to me the Government ought to explain that.

Dr. TAYLOR. This feature is undoubtedly becoming important as more and more of the tankage and fish scrap and cottonseed meal is put into the feed bin, instead of into the fertilizer bin—and that is where it is going.

Mr. HUTCHINSON. Yes.

Dr. TAYLOR. That is one of the reasons for the very high price of these organic ammoniates at the present time. The feeders are using them increasingly. That is also true in Europe. We will have to fall back on the so-called inorganic ammoniates more and more, and to use them effectively we will have to feed our plants in smaller doses and more frequently, which we do not see how we can do at present labor costs.

Mr. JACOWAY. You would not recommend the use of cottonseed meal in fertilizer at the present price of cottonseed meal, would you?

Dr. TAYLOR. Where will you get your ammonia otherwise?

Mr. JACOWAY. I am asking you the question. Cottonseed meal is sky high, and, if you put it into fertilizer, it looks to me, from my standpoint, that it would be bad policy; that you would get more value by feeding it to the animals than by putting it on the soil.

Mr. HUTCHINSON. No; in the long run, Mr. Jacoway, you are depreciating your ground and reducing your production.

Mr. JACOWAY. That is what I am asking him.

Dr. TAYLOR. As a general proposition, I feel that the largest return and the best result on agriculture would be through the feeding of the cottonseed meal and the use of the animal manure that comes from it and marketing the meat and the milk that comes from it. But you can not do that overnight for your whole crop; that is, you can not change from a fertilizer-sack basis to a manure-pile basis overnight. It is a thing that has got to be worked out.

Mr. CANDLER. Is there any serious shortage of fertilizers all through the country?

Dr. TAYLOR. You can get much more exact information from Dr. Whitney than from me on that matter.

Mr. CANDLER. I thought possibly you might have some general information on it.

Dr. TAYLOR. I will say this, as to the phosphate supply, that there is a very serious shortage, resulting to a considerable extent from strikes in the Florida mine country, which continued for months and reduced the production until rather recently.

Mr. CANDLER. That makes these various ingredients more expensive, and that makes production more expensive, which, in turn, raises the price?

Dr. TAYLOR. Yes, sir.

The CHAIRMAN. We will pass on now to item 88, page 79, "for acclimatization and adaptation investigations of cotton, corn, and other crops introduced from tropical regions," etc., \$104,410.

Dr. TAYLOR. There is no change in that.

The CHAIRMAN. The committee will now recess.

(Thereupon, at 12.30 o'clock p. m., the committee took a recess until 2 o'clock p. m.)

AFTER RECESS.

BUREAU OF PLANT INDUSTRY—Continued.

The committee reassembled at 2.30 o'clock p. m., pursuant to recess.

STATEMENT OF DR. WILLIAM A. TAYLOR, CHIEF OF THE BUREAU OF PLANT INDUSTRY, DEPARTMENT OF AGRICULTURE—Continued.

The CHAIRMAN. Will you proceed, Dr. Taylor?

Dr. TAYLOR. Our next item is item 89, page 80. The appropriation—

Mr. JACOWAY. Did you take up item 88, Dr. Taylor, "For acclimatization and adaptation investigations of cotton, corn, and other crops introduced from tropical regions, and for the improvement of cotton and other fiber plants"?

Dr. TAYLOR. We did not discuss that. There is no change there.

The CHAIRMAN. You might explain something about New Zealand flax in the United States.

Dr. TAYLOR. The New Zealand flax or phormium has been looked into and investigated in the field without disclosing much promise of commercial development. It is not thriving sufficiently in the southern California territory, where the largest patches of it were—on high-priced land and under irrigation—to give any promise that it will be profitable.

The CHAIRMAN. Have you been importing the plants or importing the seed and planting it?

Dr. TAYLOR. We are not importing plants. We are starting experimental planting in the East, where the climate is more humid, like New Zealand.

The CHAIRMAN. Where do you get your seed?

Dr. TAYLOR. In New Zealand and from the scattered patches in this country, which were grown from plants imported in former years, some of it in Florida and some in Louisiana.

The CHAIRMAN. How much did you expend on this last year?

Dr. TAYLOR. We have expended so far this year under this proviso, I think, about \$300.

The CHAIRMAN. And the balance goes back into the Treasury?

Dr. TAYLOR. Of course, the year is not quite half through. There will be some return to the Treasury under this proviso.

The CHAIRMAN. You have never had very much faith in it, have you? It was put in here against the recommendation of the department, was it not?

Dr. TAYLOR. We did not recommend it. The crop in New Zealand is essentially a wild crop. It pays to harvest it and work up the fiber because it has not cost anything to produce it up to that stage.

It has not become, so far as we are able to learn, an important and successful crop to plant and grow for fiber production anywhere.

The CHAIRMAN. Are you making progress on the other items here?

Dr. TAYLOR. Dr. Kellerman calls my attention to this record of the experiments this year with the New Zealand flax:

Several hundred seedlings, sufficient for trial plantings, are growing at Chico, Calif. It is learned that phormium plants are injured by temperatures below 20° F., and still more by temperatures above 85°. The only region in this country, so far as can be learned, having a temperature sufficiently equable for phormium is around San Diego, Calif., and in that region there is a lack of moisture and of humus in the soil over commercial areas necessary to permit profitable production of this plant.

The CHAIRMAN. Do the farmers take any interest in it?

Dr. TAYLOR. I think not. A manufacturing concern did several years ago send an inquiry to New Zealand, as a result of which, without an order from them for the plants, a considerable shipment of plants was started. Those plants were found to carry some pests which caused their exclusion from the country.

Mr. LEE. Doctor, a few years ago, did not a very big corporation bring in a shipment of these plants?

Dr. TAYLOR. I think it was the International Harvester Co.

Mr. LEE. Yes; the International Harvester Co.

Dr. TAYLOR. That was the incident I had reference to.

Mr. LEE. That had nothing to do with your tests up to this time?

Dr. TAYLOR. No, sir.

The CHAIRMAN. Item 89, "For the investigation, testing, and improvement of plants yielding drugs, spices, poisons," etc., \$59,820.

Dr. TAYLOR. This includes an increase of \$1,000 to make adequate provision for the poisonous-plant investigations of the bureau. The Bureau of Plant Industry does the plant work connected with the live-stock plant-poisoning investigations of the Bureau of Animal Industry. We have one man engaged upon this work, which has been chiefly in the far West. There is need for field expenses through which that man's service can be utilized in certain portions of the year in the southern range country, where poisonous plant trouble has been reported. This \$1,000 is desired specifically for that work.

The CHAIRMAN. Are you conducting these investigations on public lands and in the national forests mostly?

Dr. TAYLOR. The forest lands and the public lands almost entirely, although occasionally identification work on privately owned ranges needs to be done to learn what plants are causing the trouble.

The CHAIRMAN. Do you attribute the loss of stock to any extent to these poisonous weeds?

Dr. TAYLOR. In certain cases heavy losses are experienced with larkspur and plants of that character.

The CHAIRMAN. You are asking for 32 positions for 1921, and in 1919 you had 58. You are asking for more money for fewer people. I am referring now to the table on page 81. You report 58 people employed in 1919, and you now propose to employ 32 people at practically the same expense.

Dr. TAYLOR. Those salary items, you will realize, include part-year employment; that is, part-time employment of men who during the remainder of the year are engaged upon some other line of work.

The CHAIRMAN. You report six on temporary employment in 1919 and one this year, so there is only a difference of five on temporary employment.

Mr. JONES. They may have been employed only for a short period of time. The whole 22 may not have worked more than four or five hours each.

Mr. CHAIRMAN. What is next?

Dr. TAYLOR. Page 82, item 90 "For crop technological investigations, including the study of plant-infesting nematodes." There is no increase in that. That work is proceeding.

The CHAIRMAN. Kindly tell us about these nematodes?

Dr. TAYLOR. That investigation is a very important activity.

Mr. JONES. Where is that?

Dr. TAYLOR. Item 90, on page 82.

These organisms, which are typified by the root-knot organism of the South, which affect many plants there, exist in very large numbers of species. There has not hitherto been careful systematic study of them anywhere in the world with respect to their injury to plants. One of them, to which I have made reference, which has come to light this last year, is the clover destroying nematode. Another is a sugar-beet destroying nematode, which is causing serious damage in several of the irrigated sugar-beet growing regions.

The work under this item is a careful, scientific, technical investigation of these organisms, to get at what they are, how many there are of them, what crops they attack, and to develop an adequate fund of information, regarding them in the expectation that with certainty trouble will come from them in the future. We believe it is wise to be forehanded with respect to these potential disease-producing organisms.

Mr. McLAUGHLIN of Michigan. As this work has been going on for years, are you finding new varieties of these things?

Dr. TAYLOR. Yes, sir. The effort at present is concentrated pretty largely on determining the life history of the organisms and getting at how they breed and function, and in that way to know what they are, how they live, and what the weak points in their life history are.

Mr. McLAUGHLIN of Michigan. Is the Bureau of Entomology doing anything in the same line?

Dr. TAYLOR. No, sir. Of course, in so far as human beings are concerned, the Public Health Service is working on the hookworm disease, which is caused by one of these same organisms.

Mr. JONES. I observe, Doctor, that this appropriation started in 1911 with \$13,000. The estimate now is \$24,940, and about 95 per cent of that is for salaries and traveling expenses. Why was it necessary to increase the number of men? Necessarily, it must have been the number of men that was increased to make these investigations in the last 10 years. Could they not have carried out these investigations with the original force?

Dr. TAYLOR. No, sir.

Mr. JONES. Why not?

Dr. TAYLOR. This should be borne in mind that the language of this item as it stands has not stood as it is here through this whole period of years. The work under this paragraph has varied and developed materially since the work was originally begun. The

work under this paragraph at the start was chiefly with respect to such technological investigations as the determination, for example, of methods of measuring the twist and the staple lengths of cotton. The nematode phase has grown in importance and in need especially during the last two or three years.

Mr. McLAUGHLIN of Michigan. Do you make some division there showing the amount spent for each kind of work?

Dr. TAYLOR. We will show that in our project statement, which the chairman has asked us to submit at the end of the hearings for the bureau.

Mr. McLAUGHLIN of Michigan. All right. You will show how much money you used for chasing these nematodes and how much for these other investigations.

Dr. TAYLOR. Our project statements will show that completely.

Mr. McLAUGHLIN of Michigan. All right.

The CHAIRMAN. What have you to say about item 91, "for biophysical investigations in connection with the various lines of work herein authorized"?

Dr. TAYLOR. That covers the biophysical features of crop work prosecuted in cooperation with several of the other offices of the bureau, including the dry land agriculture and the irrigation agriculture and the alkali-resistant plant breeding work, all of which are covered in separate paragraphs. This item covers the technical plant transpiration studies and the water requirement studies in connection with both the dry farming and the irrigation agriculture experimentation.

Mr. McLAUGHLIN of Michigan. Of course, if the chairman were asked for a technical explanation of this word "biophysical," he would be able to give that, but I think there are other members of the committee who perhaps might not be able to tell.

Dr. TAYLOR. Item 92, "for studying and testing commercial seeds," is the subappropriation for pure-seed investigation under which our seed laboratory is maintained, through which the Seed Importation Act is administered for the protection of the country against imported adulterated or low-germination field seeds. That is a work that is assuming very large importance now that the world's stock of such field seeds as clover, and to some extent alfalfa, is low, and the tendency is to push off onto this country those seeds of low quality which can not be sold at home in the European countries.

Mr. McLAUGHLIN of Michigan. There is authority, is there, to exclude the defective or impure seed?

Dr. TAYLOR. The import seed law, the act of August 24, 1912, gives the Secretary of Agriculture authority to forbid entry of field seeds containing in excess of certain percentages of adulterants and, as amended on August 11, 1916, to exclude seed below a certain percentage of germination. This applies to field seeds and not to vegetable seeds. It applies to what are commonly known as agricultural seeds.

Mr. McLAUGHLIN of Michigan. When an importation of seeds is offered, it seems to me there would be a good deal of trouble and expense involved in testing those seeds for germination. There must be a considerable lapse of time involved. How is that worked out?

Dr. TAYLOR. A very large portion of our foreign seeds come in through the port of New York. The customs officers at the port of

entry take samples of each invoice, turn them over to our representative; they are immediately examined microscopically to determine the purity and freedom from adulterants, and the germination test is started. The shipment must be held; it can not be legally entered until our report back to the customs officer approves the entry. In the event the seed contains impurities which can be removed by cleaning processes, the cleaning must be done. All this is handled while the seed is in bond.

Mr. McLAUGHLIN of Michigan. That work and the expense of it, I suppose, is borne by the importer?

Dr. TAYLOR. Yes, sir; the only expense to the Government is for the work and expense of our people in the making of the necessary tests.

Mr. McLAUGHLIN of Michigan. Where is this germinating done?

Dr. TAYLOR. That is done either in our laboratory in Washington or at such cooperative laboratories as we maintain in several of the States—one at Columbia, Mo.; one at Berkeley, Calif.; one at Corvallis, Oreg.—whichever is nearest to the port of entry. The bulk of it is done here, because this is the nearest laboratory to New York.

Mr. McLAUGHLIN of Michigan. Have you an artificial or scientific way of forcing germination, or do you have to let nature take its course and in that way cover a great deal of time?

Dr. TAYLOR. The initial germinating tests are made in what are known as germinating ovens generally, where temperature and humidity are under control. For any close cases, if there is a certain percentage of hard seeds which will only germinate slowly, duplicate tests are made in greenhouses and in various ways. It usually takes, except with very quick germinating seeds like crimson clover, two weeks; in some cases longer than that.

Mr. JACOWAY. Doctor, under this provision have you prohibited any dealers in seeds sending impure seeds in interstate shipments?

Dr. TAYLOR. We have no authority over the interstate movement of seeds.

Mr. McLAUGHLIN of Michigan. While you are going through this work of testing the seeds they are held in bond, are they?

Dr. TAYLOR. Yes, sir.

Mr. McLAUGHLIN of Michigan. In the original port of entry?

Dr. TAYLOR. Yes, sir.

Mr. McLAUGHLIN of Michigan. This work is done in your laboratories, I presume, where a great deal of other work is being done?

Dr. TAYLOR. Yes, sir.

Mr. McLAUGHLIN of Michigan. You do not have to maintain laboratories specially for that work alone?

Dr. TAYLOR. Not separately; no. We use the same laboratories we use on general seed-testing work, which is proceeding on a large scale. Individual farmers send in for testing samples of seeds about which they are doubtful, of the germinability of which it is important for them to have determined.

Mr. McLAUGHLIN of Michigan. I suppose that is true of each of the laboratories you have named; you do not maintain a special laboratory for that?

Dr. TAYLOR. No, sir.

Mr. McLAUGHLIN of Michigan. At any one of those places in this particular work?

Dr. TAYLOR. No, sir. In addition to this feature, which is definitely regulatory, we carry on continuous testing of the important field crop seeds over which we have no regulatory control but which we do have authority to test and to publish the results of the tests, naming the dealers whose output is found adulterated.

Mr. McLAUGHLIN of Michigan. That is, to advise and assist?

Dr. TAYLOR. Through publicity we endeavor to restrain adulteration.

Mr. JACOWAY. Doctor, in the South, Johnson grass seed is about the greatest enemy to land you can put on it, and it is very similar to Sudan grass seed. Have you had any complaint of seed dealers sending Johnson grass seed to the South under the guise of Sudan grass seed?

Dr. TAYLOR. There were complaints some time ago. There were cases of that nature soon after the introduction of Sudan grass in a commercial way.

Mr. JACOWAY. Yes.

Dr. TAYLOR. And it was at that time not possible to distinguish Sudan grass seed from Johnson grass seed. Methods of distinguishing were worked out by one of the specialists in this laboratory which have made possible the separation of Johnson grass seed from Sudan grass seed. I would not say that that practice has ceased, but we are not aware that there is now serious trouble.

Mr. JACOWAY. They say they are afraid to order Sudan grass seed for fear they might be putting Johnson grass on the farms.

Dr. TAYLOR. Yes.

Mr. LEE. Was it not really more fear than reality?

Dr. TAYLOR. No; it was a definite possibility. In fact, it happened.

Mr. LEE. Did it? I never knew it.

Dr. TAYLOR. And the State of California, which had a very strict prohibition on the sale of Johnson grass seed, found it impossible to administer its law until this method of distinguishing between the two seeds was originated. The two grasses are closely related, the Johnson grass having a perennial root stock, while the Sudan grass is an annual. So it was difficult to separate them.

The CHAIRMAN. Is quackgrass being sold under the name of Sudan grass?

Dr. TAYLOR. No, sir; quackgrass seed can be so easily distinguished from seed of the Sudan type that there is no trouble about it. There is some trouble with the quackgrass in the seed of brome grass, which is a grass grown in the cold and dry country of the plains States.

The CHAIRMAN. The seed sent out by the Government is free from the foul seed?

Dr. TAYLOR. Yes, sir; absolutely free from adulteration.

The CHAIRMAN. Have you had any complaint about the seed sent out by the Government containing foul seed?

Dr. TAYLOR. No, sir.

The CHAIRMAN. What protection is given in that connection in the importation of seed?

Dr. TAYLOR. This is the protection.

The CHAIRMAN. It is often alleged that these objectionable seeds are imported?

Dr. TAYLOR. Yes, sir; when they cross our border they have to come in through this door, regardless of from what country they come.

The CHAIRMAN. A careful examination is made?

Dr. TAYLOR. Yes, sir.

The CHAIRMAN. One can feel safe against the importation of foul seeds with other seeds?

Dr. TAYLOR. Yes, sir; in so far as the agricultural or field crop seeds are concerned.

The CHAIRMAN. Are all tested and examined?

Dr. TAYLOR. Yes, sir.

Mr. JACOWAY. Doctor, have you made a list of the dishonest seed dealers and published that?

Dr. TAYLOR. We publish annually a list of the dealers from whom we have purchased samples that show adulteration. One of the important reasons for the increase that we ask here is for the purchase of those commercial samples of seeds.

Mr. CANDLER. When you buy more than you need, what do you do with the surplus?

Dr. TAYLOR. For example, if a lot of Kansas-grown alfalfa seed proves clean, in every way suitable and good seed, we use it in our field crops seed distribution. If it proves to be adulterated, we destroy it. We need \$12,900 additional for this work.

Item 93, page 84, "For the investigation and improvement of cereals and methods of cereal production, and the study of cereal diseases," is one of the largest and at this time most important sub-appropriations in the Bureau of Plant Industry. It covers the whole cereal activity—the breeding, the cultural-method work and the cereal-disease work. To get this before you in just as clear and brief shape as possible, I will ask Dr. Kellerman to discuss that, as he has been giving special attention to the administration of this.

The CHAIRMAN. Let us take up the items as they appear in the note here, Doctor?

STATEMENT OF DR. KARL F. KELLERMAN, ASSOCIATE CHIEF OF THE BUREAU OF PLANT INDUSTRY, DEPARTMENT OF AGRICULTURE—Continued.

Dr. KELLERMAN. I think no comment is needed on the first paragraph, Mr. Chairman, regarding the transfers to the statutory roll.

The CHAIRMAN. The actual increase is \$85,000?

Dr. KELLERMAN. Yes, sir; the importance of the breeding work and that general type of work has been briefly indicated in the language here. The experience of the last few years has shown that serious losses occur in all of the big producing areas because of mixtures of varieties.

Much of this can be cured by the substitution of fewer carefully standardized lots of adapted varieties for the present rather than mixed lots of seed. Unfortunately, during the war the mixing of different kinds of seeds has been very great due to the shortage in seed supply and practically all of the gain made in the previous five years has been lost.

In addition to this, there are certain changes in methods of cultivation that should be tested, and the extent to which new

methods can be adopted should be determined. The practice of spreading straw, for example, to prevent winter killing seems a very desirable thing to do. That has, however, one dangerous limitation: Spreading straw will also increase losses from wheat scab unless the straw is entirely free from this disease. Therefore, that cultural practice is one that can not be advised generally. The result from straw spreading in the long run will probably be more dangerous than beneficial unless it can be combined with a method for checking wheat scab.

Mr. McLAUGHLIN of Michigan. Would there not be scab in the straw if scab was present in the wheat when it was growing at some stage; would it not be present in the wheat at some stage so as to be known?

Dr. KELLERMAN. Yes; if one knows what to look for: Wheat scab caused losses last year probably more serious than any other one disease in the Middle West. It is probable that this disease caused a loss of 36,000,000 bushels of wheat in 1919, and yet wheat scab is not very well recognized. The injury from scab is ordinarily ascribed to hot weather or some other unfortunate weather condition that may have come up. While weather conditions intensify injury by wheat scab, still the disease itself is the main cause of injury.

Mr. McLAUGHLIN of Michigan. What is it like? How is it noticed?

Dr. KELLERMAN. It blights the kernels. In moist weather when the scab is bad you will see a little pink fungus, that is, a little fuzzy pink growth like a very small mold growing around the edges of the glume of the grain—

Mr. McLAUGHLIN of Michigan. Right around the kernel?

Dr. KELLERMAN. Right around the kernel, and the grain of the wheat is shriveled. Enormous losses of wheat are caused by this disease, chiefly in the big winter wheat region.

Mr. McLAUGHLIN of Michigan. Wheat is often shriveled by the heat?

Dr. KELLERMAN. Yes. The same fungus that causes wheat scab is one of the most troublesome fungi that causes the seedling root rots of corn that are estimated to cause heavy losses also.

Alteration of wheat and corn production on the same field, therefore, exaggerates both the trouble from wheat scab when the wheat crop is growing and the corn root rot when the corn is growing. You get the continued increase of these dangerous fungi when that rotation is used.

At the present time, from our general estimates, we think something approaching a 2 per cent loss in the corn crop is caused each year by these root rots and ear rots, due to this wheat scab fungus. That would amount to 70,000,000 bushels of corn a year.

It is necessary for us to work out methods of culture that will make it possible to get on this land some crop that is not affected without interfering with the cash return to the farmer. That is one of the cultural problems that we must investigate.

The CHAIRMAN. Some crop to intervene between wheat and corn?

Dr. KELLERMAN. Yes.

The CHAIRMAN. That will remove the trouble?

Dr. KELLERMAN. It reduces the trouble. We can not kill out that fungus in one year. Wheat scab and corn rots are so widely

distributed that the most we can hope to do, for many years at least, is to reduce them and prevent the heavy losses that occur.

To come back again to the breeding problem. The breeding of disease-resistant varieties of cereals is one of the phases of disease control that offers a very material promise of success. So both the breeding of types of cereals better adapted to the different regions of the country, more hardy, and less subject to loss from shattering, and getting those varieties more clearly recognized and in pure lines, and the breeding of these different types of cereals with ability to resist the more destructive cereal diseases, are two important lines for the department to continue.

Mr. McLAUGHLIN of Nebraska. Doctor, out in the States west of the Missouri River, Nebraska and Kansas especially, this last spring and summer there were very excessive rains. It was exceedingly wet, and there was a heavy growth of wheat. The farmers calculated they were going to have the largest yield in the history of those States?

Dr. KELLERMAN. Yes, sir.

Mr. McLAUGHLIN of Nebraska. Then, two or three weeks before harvest it turned dry and hot, and one of the lightest yields was secured in some parts; some parts only 5 to 8 bushels of shriveled-up wheat. The farmers attributed that to the hot weather following the wet weather so quickly. Is it your thought that probably this fungus was the cause of that small yield?

Dr. KELLERMAN. In the western portion of Kansas and Nebraska I think the weather was the main factor, if not the only factor, in the shrunken wheat. The same explanation, however, was used to account for the shrunken wheat that reached clear beyond the Mississippi. When you get into eastern Kansas and continue into the more humid regions of wheat production, the losses from scab become much greater, and the appearance of the wheat is almost identical with that which was merely shrivelled by the heat—that is, after it is thrashed. The appearance in the field is really different.

Mr. JONES. Doctor, I notice in this table your estimate for 1919 was \$186,000 in round numbers and the appropriation for that year was \$441,000. Why that decided jump at that time?

Dr. KELLERMAN. The Senate increased it for the eradication of the common barberry.

Mr. JONES. Did you eradicate it?

Dr. KELLERMAN. That is one of the big campaigns now under way.

Mr. JONES. Why did they not go back to a more normal appropriation after that? You continued to increase in 1920, and now it is almost \$100,000 more than your estimate for 1921.

Dr. KELLERMAN. That is true; but, even so, I regret that next year it will be impossible, because of insufficient man power and finances, to carry on the work in as many States as we are carrying it on in this year. At this time we are conducting barberry eradication work in 13 States, representing the principal wheat-growing States of the country. It will be necessary to reduce our barberry eradication work to four or five States in the coming year in order to handle the work efficiently with the men and money at our command.

The barberry eradication work is a bigger problem than we had expected. It was undertaken at the direction of Congress, and we

had not extensive surveys of the area in which we were to work at the time the work was begun. We had supposed, and I think everybody in the country had supposed, that the common barberry existed only in the places where it had been planted or in near-by places where it might have escaped from cultivation in a small way. As our field men have carried on their inspections in all of the spring-wheat States first, and later in the adjacent States, we find that the number of barberries that have escaped from cultivation is literally enormous. Each barberry plant is a potential source of a black rust epidemic. These plants that have escaped from cultivation have been able to get along in many cases for many years under the protection of trees, in fence corners, or in other uncultivated places, and the task of a thorough inspection of the places where barberries can grow, and an inspection of the eradication work; that is, an inspection of the complete destruction of each barberry plant is a task many times greater than we had supposed it to be. It has seemed to us, therefore, that it would be best to concentrate our work this year to the spring-wheat area of the United States, which is the area that has always suffered more severely from the black rust epidemics.

The CHAIRMAN. Does it not affect the oat crop?

Dr. KELLERMAN. It is seriously destructive; yes.

The CHAIRMAN. Is it as destructive to oats as to wheat?

Dr. KELLERMAN. I think it is actually about the same, but it is not considered so seriously because you have not the continuous fields of oats that you have of wheat, and, therefore, an epidemic is not as liable to spread across an entire State as it is in a spring-wheat region.

The CHAIRMAN. Is any State free from black rust?

Dr. KELLERMAN. No, sir.

The CHAIRMAN. It is all over the country?

Dr. KELLERMAN. It is scattered all over the country.

The CHAIRMAN. Was it black rust that destroyed the wheat in this vicinity last year?

Dr. KELLERMAN. The damage in the eastern part of the country was mostly from scab.

The CHAIRMAN. They had the black rust?

Dr. KELLERMAN. They had some black rust. This year there was more damage in the East from leaf rust than from black rust. I believe.

The CHAIRMAN. What is the leaf rust?

Dr. KELLERMAN. It is just a different species of rust, Mr. Chairman. The leaf rust does not attack the stem of the grain.

The CHAIRMAN. Is that commonly called the red rust?

Dr. KELLERMAN. The red rust.

The CHAIRMAN. That is not as injurious as black rust?

Dr. KELLERMAN. That has not been generally considered injurious, Mr. Chairman, but the losses from leaf rust for the last two or three years have been increasing alarmingly. It is now regarded as one of the really serious troubles, but none of those troubles approach the excessive losses that occur from the black stem rust epidemics.

The CHAIRMAN. The red rust kills the leaf but does not kill the stem?

Dr. KELLERMAN. It does not kill the stem.

The CHAIRMAN. Some of the largest crops we have had were when we had red rust?

Dr. KELLERMAN. Yes.

The CHAIRMAN. We have never feared the red rust, but we knew when it ran to black rust we would have a light yield?

Dr. KELLERMAN. Sometimes you will get weather conditions when leaf rust will do serious damage to your plant before it produces its head. Then the head will be shriveled.

The CHAIRMAN. I visited a number of fields in Virginia last year which were killed by black rust.

Dr. KELLERMAN. Yes; it does cause severe loss, but it is not as serious in the East as the big spring-wheat areas.

The CHAIRMAN. Does it cover the whole country?

Dr. KELLERMAN. Yes.

The CHAIRMAN. Is any State free from it entirely?

Dr. KELLERMAN. No.

Mr. CANDLER. Do you think it advisable to continue this work at all and only remove it from these States and confine it to five or six States, or would it be better to go ahead and exterminate it in all of them as rapidly as possible?

Dr. KELLERMAN. I regret that the task is too big to try to do it all at once.

The CHAIRMAN. Is it not a fact that the spore is carried hundreds of miles?

Dr. KELLERMAN. They can be carried hundreds of miles in severe storms, but we have very little reason to believe they are often carried very far, because in our field examinations we find small black rust epidemics only when there are numerous barberry plants near by. If we get out in a region practically free from barberry plants—that is, if we can get several miles away from barberry plants—we have only a little black rust. It is for that reason that we have come to the conclusion that with the amount of money we have available for the coming year it will be better for us to clean up as completely as we can this spring wheat area that has suffered the heaviest losses in times gone by.

The CHAIRMAN. Yes; but the spores may be carried?

Dr. KELLERMAN. The spores may be carried.

The CHAIRMAN. Then it would not do much good to clean up in one locality unless you cleaned up the whole country. I have heard that they have been carried as far as 200 miles, and in some cases as far as 1,000 miles.

Dr. KELLERMAN. I think that is possible. I think it is also fair to say, if we can kill all the barberries in the spring wheat States, that the likelihood of a big epidemic sweeping across those States is small.

The CHAIRMAN. Are you satisfied that by exterminating the barberry you can eradicate the black rust?

Dr. KELLERMAN. I think we can prevent epidemics of black rust. I doubt whether we will ever eradicate entirely the disease in this country. In fact, I think it would be better to say it is impossible to eradicate black rust in the United States.

The CHAIRMAN. Is barberry the only source of black rust?

Dr. KELLERMAN. No; wild grasses will harbor it in the South, but will not spread it in cold regions unless it gets to the barberry.

The reason I am not urging barberry eradication in the warmer regions is that the stem rust will continue there anyhow.

The CHAIRMAN. It develops under certain climatic conditions?

Dr. KELLERMAN. Yes; in Missouri the weather is such that stem rust will live over the winter in the stage that will affect wheat, but in Minnesota it will not without the barberry.

The CHAIRMAN. Does the rosebush aid it?

Dr. KELLERMAN. Nothing but the barberry.

The CHAIRMAN. What are the weeds or grasses you referred to?

Dr. KELLERMAN. There are many wild grasses that will carry the summer spores, but only if the winter is not too cold.

The CHAIRMAN. You mean after they mature?

Dr. KELLERMAN. After they mature, will carry them so they will affect wheat the next year if the weather is not cold.

Mr. McLAUGHLIN of Michigan. The barberry bush is a shrub?

Mr. KELLERMAN. Yes, sir.

Mr. McLAUGHLIN of Michigan. An ornamental shrub?

Dr. KELLERMAN. Yes, sir.

Mr. McLAUGHLIN of Michigan. It is cultivated by people as an ornamental shrub, and the nurseries sell those things. Are the nurseries still selling them against your objection?

Dr. KELLERMAN. No, sir; the American Association of Nurserymen voluntarily, and I believe also unanimously, passed resolutions eliminating the common barberry from their ornamental line, and the western nurserymen, as far as I remember, without exception, have refused to sell the common barberry for distribution in any of those Western States.

The CHAIRMAN. A number of States prohibit it entirely by law?

Dr. KELLERMAN. Yes, sir; practically all of the Western States now.

The CHAIRMAN. And destroy them?

Dr. KELLERMAN. And require their destruction.

Mr. McLAUGHLIN of Michigan. Describe what one of your men does in inspecting this barberry business.

Dr. KELLERMAN. The barberry inspector, when he finds the barberry plant, first informs the owner that he has on his premises this plant or plants that spread the black rust in wheat. If the man does not understand anything about it, he makes it a point to explain the reasons. We request the immediate destruction of the plant that is, if it is practicable. If the owner is there on the property, so the whole thing can be done at once, the inspector remains while the plants are removed. In so far as he may do it, he helps take them out so as to make sure they are taken out properly, so that all the roots that might sprout again are thoroughly removed. That is one difficulty in our eradication work—to get the people to take out not only the central clump of roots but all the roots.

Mr. McLAUGHLIN of Michigan. Do you find the people object at all to removing the barberry bushes from their grounds?

Dr. KELLERMAN. Very few people object. A few people have objected. I think the few that have objected did so because they really did not understand why the campaign was being urged.

Mr. RUBEY. What do you do in the case of an objector?

Dr. KELLERMAN. If a man refuses to take out his bushes the department has done nothing in those cases beyond referring the matter to the CHAIRMAN. How many States have enacted laws requiring their destruction?

Dr. KELLERMAN. I believe there are six States. Minnesota and Wisconsin, I believe, have orders. I had included those as laws. They are really orders of their public-safety commissions. They have the force of law, however.

The CHAIRMAN. In Wisconsin the Federal or State inspector visits the place, as you say, and gives orders to destroy it. They visit the place again two weeks later and see that it is done.

Dr. KELLERMAN. Yes, sir.

The CHAIRMAN. That is also true in my State, Iowa.

Dr. KELLERMAN. Yes, sir.

The CHAIRMAN. And I think it is true in Minnesota.

Mr. ANDERSON. I think the original order of the safety commission requires destruction of them, and, as Dr. Kellerman says, that has the force of law. I suppose, however, that that will be at an end before very long.

Dr. KELLERMAN. I have rather expected that. We had hoped, when we started in on our first really large campaign, that we would have the barberries so nearly eradicated by this year that the question of permanent legislation would be less important to us.

The CHAIRMAN. Have you a list of the States that have enacted laws?

Dr. KELLERMAN. I have not the list here.

The CHAIRMAN. Will you insert it in the record?

Dr. KELLERMAN. Yes, sir.

(The statement referred to follows:)

STATES WHICH HAVE PASSED LAWS OR REGULATIONS REQUIRING BARBERRY ERADICATION.

When the campaign opened Colorado already had an amended plant-pest law which gave sufficient authority to eradicate barberries.

Illinois, Iowa, Michigan, and South Dakota have passed amendments effective in 1919, which either amend existing crop-pest or plant-inspection acts so that these laws will also apply to harmful barberries or define harmful barberries and provide for their eradication.

Minnesota, Montana, Nebraska, North Dakota, and Wisconsin have passed new laws which declare harmful barberries a nuisance and provide for their eradication. These laws have become effective in 1919.

In Indiana, under authority of the acts of 1919, the conservation commission issued an order on November 6, 1919, in force on and after the 29th of November, 1919, which declares *Berberis vulgaris* and all its horticultural varieties a menace to wheat and other small grains and orders its removal. This order is to all intents and purposes the same as a law.

In Ohio a new crop-pest law of August 15, 1919, gives the Secretary of Agriculture sufficient authority to enforce the eradication of barberries, but to date this law has not been invoked for that purpose. Recently under this act a quarantine was placed on the shipping and sale of barberries within the State.

To date in Wyoming the existing horticultural law has not been construed to cover the situation, nor has any new law or amendment been enacted.

The CHAIRMAN. The nurserymen are not selling the barberry bush. How long will those that have been grown live if not interfered with?

Dr. KELLERMAN. It is a long-lived shrub. I do not know—I suppose you would have some 25 or 30 years old.

Dr. TAYLOR. There are shrubs in humid sections that are 60 and 75 years old, and there is in the Saginaw district of Michigan, where a nursery was——

Mr. McLAUGHLIN of Michigan. Is the damage as great in that Saginaw section as in other sections of the country?

Dr. TAYLOR. The damage is not nearly so great in winter wheat territory as in spring wheat territory.

Mr. McLAUGHLIN of Michigan. I know; but is it as great in that Saginaw district? Is it as extensive in the district where the barberry is noticeable as where it is not noticeable?

Dr. TAYLOR. There is practically no portion of Michigan that was out of sight of barberry hedges. Prior to two years ago barberry was one of the most common ornamentals; it was planted on almost every farmstead. In many cases it was used for roadside hedge planting. It was in my home country in southwestern Michigan, and likewise throughout all the older settled parts of the State.

There are numerous examples where wheat that was adjacent to these hedges and dooryard plantings has shown year after year a heavy early infection of black rust where a few miles away—this is mostly in the Wisconsin and the Minnesota country—that rust did not become epidemic early enough to shrink the wheat.

The CHAIRMAN. Is it not a fact that it is harmless under certain climatic conditions?

Dr. TAYLOR. The injury may be negligible.

The CHAIRMAN. We find in our section of the country, if the wheat matures before the hot winds and heavy dew come, that we have a big crop of wheat; but, if the heavy dew and high temperature both come before the maturing of the wheat, we have black rust. Sometimes 10 days before harvest, we expect a yield of 25 bushels, but the black rust will cut it down to 10 bushels and shrivels up the wheat. That has been our experience for 25 years. I was surprised that the people in this vicinity did not know about black rust. They were estimating 30 to 40 bushels last year. I estimated that they would get only 10 to 20 bushels, and it turned out that way. We have had it to contend with every year since 1870.

Dr. TAYLOR. If the disease develops sufficiently while the grain is in the milk, you can be sure of heavy shrinkage. If it does not develop until after the grain is well through the dough stage, you get little damage to the wheat.

The CHAIRMAN. It is very discouraging if you can not operate in more than four States. I am afraid that is not going to accomplish much; that is, if it is true that it is carried in the air for a distance of 200 miles.

Dr. KELLERMAN. There are two ways of looking at that, Mr. Chairman. One is the attempt to provide sufficient funds for a greatly increased activity; the other is to attempt to take the heart of the troubled district and clean that up thoroughly, and then to gradually expand that clean area. The first plan would require such heavy expenditures that it seemed to us unwise to recommend that at this time.

The CHAIRMAN. As I understand, it is impossible to exterminate it in the southern climates?

Dr. KELLERMAN. To exterminate the black rust; yes, sir. To exterminate the barberry to a degree that will prevent serious epidemics

I believe to be entirely practicable. We believe it will be necessary to have barberries exterminated over a much larger area than the four or five spring wheat States, but those are the States that suffer the great losses and where the epidemics are most likely to assume excessive proportions. For that reason, we believe we should begin with them and clean out the common barberry. The Japanese barberry is entirely harmless.

The CHAIRMAN. We speak of wheat, although the rust is just as injurious to oats?

Dr. KELLERMAN. Yes; it is injurious, but we have not considered it as much from the standpoint of oats because, as I said before, you do not have the large areas of oats as you do of wheat. If we can eradicate the common barberry, we believe we will have the seriously destructive epidemics of black rust eliminated from this country entirely.

Mr. RUBEY. Does the barberry plant spread from roots or from seed?

Dr. KELLERMAN. Almost entirely from seed, but if it is chopped out the roots live and the larger roots will sprout.

Mr. LEE. Is it a little red berry?

Dr. KELLERMAN. Yes.

The CHAIRMAN. How many States are cooperating with you in this work?

Dr. KELLERMAN. We are now in actual cooperation with 13 States.

The CHAIRMAN. Can you give a list of the States?

Dr. KELLERMAN. Cooperation in the eradication of barberry is maintained with the States of Colorado, Illinois, Indiana, Iowa, Michigan, Minnesota, Montana, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin, and Wyoming.

The CHAIRMAN. You said you would have to reduce it to four States. What States are those?

Dr. KELLERMAN. The spring wheat States. We have not actually determined the limit. There will be approximately four or five States; maybe a few more. Those would probably be Wisconsin, Minnesota, North and South Dakota, and Montana.

Mr. McLAUGHLIN of Michigan. The barberry root is easily removed, is it not?

Dr. KELLERMAN. If it was not for its numbers it would be no problem whatever. It is only the remarkable distribution that the barberry has had in the last 25 or 30 years that makes the trouble.

Mr. McLAUGHLIN of Michigan. Can you not get the people to do it themselves?

Dr. KELLERMAN. At the beginning of this work we hoped that we could do it merely by calling attention to it through the newspapers, the country papers, and probably by posters and other publicity ways to call attention to the importance of getting rid of the barberries. We thought that not very much beyond the ordinary publicity work would be necessary. As the inspectors became more experienced in searching for barberries the plants were discovered in so many inaccessible places that we have become perfectly confident that the average person is not going to find the barberry bushes, and that it is going to require something of the same skill as a canker inspector employs to find a tree infected with citrus canker, or the potato specialist to find the late blight of potatoes.

The CHAIRMAN. Can not that be done through the county agents?

Dr. KELLERMAN. The county agents can not do all this work but will give us more help during the coming year.

Mr. McLAUGHLIN of Michigan. Why could they not do it?

Dr. KELLERMAN. In the first place, they would have to have trained men go out with them to show them where to search for barberries.

The CHAIRMAN. Does it require training to find the barberry bush?

Dr. KELLERMAN. It seems so.

The CHAIRMAN. If they can not do that, we had better dispense with their services. I think a blind man can pretty nearly do it.

Dr. KELLERMAN. It is not that they could not search for them, but a certain amount of experience in work of this sort makes it efficient and reasonably cheap. The average person hunting for barberries is going to waste a great deal of time in searching in places that might seem to him reasonable but which the trained inspector could pass at a glance. In the same way he will overlook places that the man who is familiar with the inspection would find.

The CHAIRMAN. You do not expect people to go into every nook and corner throughout the United States to find barberry bushes, do you?

Dr. KELLERMAN. We have to in the spring wheat States.

The CHAIRMAN. It will take you years to go over one State?

Dr. KELLERMAN. We believe we have out in the different States from 60 to 80 per cent of the barberries in that most important group of States; that is, the 8 or 10 States with North Dakota as the center.

Mr. CANDLER. Is there any difficulty in recognizing the bush at all?

Dr. KELLERMAN. The little seedlings most people overlook; they are so little, and they get into such unexpected places.

Mr. CANDLER. If they can recognize the bush, it seems to me that the suggestion made by the chairman that the county agent can look them up is a good one. It occurs to me that if he has eyes and is educated in the description of the bush, he can locate it.

Mr. JACOWAY. Would it not take the county agent all his time looking for this barberry bush, Doctor?

Dr. KELLERMAN. I do not think there is any doubt about it. If a man is going to hunt for barberries he will have no time for anything else. We have had men working desperately here this year in the field and men gaining experience every week that made them able to cover the ground more rapidly and more thoroughly; and yet with an unusually good organization, with a very high degree of interest on the part of the men who are doing the work, we certainly are finding the problem really difficult.

Mr. McLAUGHLIN of Michigan. I have been very much interested from the first in this inspection work, and I believe a good county agent is a very valuable institution in the county—

Dr. KELLERMAN. I think so.

Mr. McLAUGHLIN of Michigan. And he has a great deal of work to do, but I have been a little disappointed in the way the thing has worked out. It was surprising to some. It shocked some people when it was suggested that when this extension law matured

there would be money enough for the employment in each county of a man representing the Federal Government, paid partly by the Federal Government. They thought it was a wonderful thing to have one trained man in each county in the State, but we are hearing from time to time that a county agent can not do this and he can not do that. An expert must be sent to help him to do one thing and help him to do another. He is not capable of doing the things one would ordinarily think the county agent would be able to do. It is a disappointment to me to hear that the county agent can not do some of these things. You have to send an expert with him to advise as to the feeding of cattle, the breeding of cattle, the diseases of each kind of cattle, different kinds of fruit diseases, the diseases of different vegetables; you have to have a separate expert for each one of those things. The county agent is not capable of looking after any one of them.

Dr. KELLERMAN. I think you will find, Mr. McLaughlin, that the county agents, as a general average, look after all these things you have referred to, but every once in a while some unusually important problem or some unusually difficult problem comes up along one of those lines where the aid of a more highly trained specialist is necessary. Naturally those are the cases that come before you, and naturally those are the cases where it is necessary to ask for a specialist.

Mr. McLAUGHLIN of Michigan. A man from the Bureau of Animal Industry told us yesterday that it was necessary to have his specialist go out to assist in the organization of a bull association and to teach breeding methods. I do not know, but I am afraid we are carrying the expert business a little too far.

STATEMENT OF DR. WILLIAM A. TAYLOR, CHIEF OF THE BUREAU OF PLANT INDUSTRY, DEPARTMENT OF AGRICULTURE—Continued.

Mr. JONES. I want to ask Dr. Taylor a few questions. Doctor, in the first place, will you tell me the difference, if there is any difference, between part time and temporary time among your employees?

Dr. TAYLOR. As those expressions are used here?

Mr. JONES. Yes.

Dr. TAYLOR. Part time means that the man is part of the year on this work and part of the year upon some other work for the Department of Agriculture. He is a continuing employee of the department, whose services are assigned part of the time to one line of activity and part of the time to another. "Temporary" signifies that he is employed for a part of the year only; as, for example, during the crop season.

Mr. JONES. Will you kindly turn to page 85 of the estimates. Under your column "Expended in 1919" the sum total of employees is given as 175. If I added that up correctly I find that you had about 55 temporary and part-time men; then there are 78 per-month and per-diem men; that makes 133, which would be temporary, part time per diem, and per month; that, taken from your sum total of 175 left 42 permanently on the roll?

Dr. TAYLOR. Yes, sir.

Mr. JONES. Now you propose in your estimate for 1920 to make that 90, with two men on part time; that would be 88 permanent men. You consider that a necessity, do you?

Dr. TAYLOR. That is our best judgment at this time; yes, sir.

Mr. JONES. That will be an increase of 100 permanent men on this appropriation?

Dr. TAYLOR. For the fiscal year 1920?

Mr. JONES. Yes.

Dr. TAYLOR. Yes.

Mr. JONES. You think that is a necessity?

Dr. TAYLOR. Yes; that is our best judgment.

Mr. JONES. To analyze it a little more, if you go up the line, you will find pathologists that get \$1,500 a year. You have in your estimate for 1920 seven—two part time. In 1919 you had only four part time on that. What is the necessity for that increase there?

Dr. TAYLOR. I can not give you that in detail and specifically with respect to this particular instance, but here is the situation—this may help you, Mr. Jones. You remember that in the fiscal year 1919, which ended last June, we were operating under rapidly changing conditions, with our men going into the Army and coming back again.

Mr. JONES. I understand why you have a lot of temporary men and a lot of part-time men, but my inquiry is this: You only had four men altogether for that particular position on part time. Now you propose to have seven permanent men and only two of them part time?

Dr. TAYLOR. Yes, sir.

Mr. JONES. There is certainly an increase in the duties to be performed, or you do not need the men.

Dr. TAYLOR. Under this enlarged work that is estimated for; yes, sir.

Mr. JONES. Then, further down, you have an assistant at \$1,500. You have seven, and last year you had only four temporary men?

Dr. TAYLOR. Yes, sir.

Mr. JONES. The large work demands that increase, does it?

Dr. TAYLOR. Yes, sir. Our appropriations for this work, and especially for the pathological features of this work, are very largely for men.

Mr. JONES. I observe that, and expert men, too.

Dr. TAYLOR. They must be. It can not be done except by trained men. So that I serve notice now that practically every time you increase an appropriation which covers new work you increase our personnel.

Mr. JONES. I understand that is true. I have been convinced in the last three or four days that that is true. But can you tell me why—I presume you can—if there is a bug on wheat—

Dr. TAYLOR (interposing). That would come under the Bureau of Entomology, but suppose it were a case of disease of wheat or a disease of potatoes; there is exactly the same need for special training, ability, and experience with plant diseases as there is with human diseases. There are no efficient general practitioners on plant diseases at this time.

Mr. JONES. Yet all these men who have been working part time have evidently been going into some other branch of your department; they have some efficiency in other lines?

Dr. TAYLOR. I do not mean to say they are not efficient, because they are. There are particular features of this work which they can be assigned to, but the real way to get at it would be to have a session over in our laboratories. I wish we could do that.

STATEMENT OF DR. KARL F. KELLERMAN, ASSOCIATE CHIEF OF THE BUREAU OF PLANT INDUSTRY, DEPARTMENT OF AGRICULTURE—Continued.

The CHAIRMAN. I would like more information about black rust. What progress has been made, what do you expect to do, and what may we look for?

Dr. KELLERMAN. I think I can put the case very briefly, Mr. Chairman, in this way: Our field experience for the past two years bears out very strikingly the statements of the men in Denmark and Sweden that the elimination of the barberry resulted in the suppression of the black-rust epidemics.

The CHAIRMAN. Do you concur in that conclusion?

Dr. KELLERMAN. We concur in that conclusion.

The CHAIRMAN. The next thing is to exterminate it. How are you going to do it?

Dr. KELLERMAN. The plan of exterminating the barberry by publicity methods does not appear to us to have any hope of success. We have very effective methods of calling attention one way and another to the danger of the barberry plant, but unless unusual emphasis is given to the discovery of these stunted little seedlings, that are just about as dangerous as the big bushes when it comes to spreading rust, but which are very easily overlooked—unless we give a specially hard drive to the eradication of those, we fear the whole thing will fail.

The CHAIRMAN. You now have men and women lecturing in nearly every town and hamlet in the country. Can you not cooperate with that branch of the department, disseminate this knowledge, and get some enthusiasm in the work?

Dr. KELLERMAN. We are doing it now.

The CHAIRMAN. I understood you to say that the county agents would not be of service?

Dr. KELLERMAN. I certainly did not want to create the impression that the county agents could not help us. The county agents are helping us in every possible way. They are calling attention to the barberries whenever they see them; they are calling attention to our different pamphlets, and they are helping us distribute our pamphlets; they are calling attention to articles that are in the country papers on barberry; in every way they can they are supplementing our work on the campaign of eradication. What I meant to say was that the county agent is even now overworked.

The CHAIRMAN. In my opinion, this is the about most important work you have. You can render as valuable service to the country in this one way as in anything we have before us.

Dr. KELLERMAN. We believe it is very important.

The CHAIRMAN. It seems to me these county agents should be directed on this line, because it is a most important line of work. In my opinion, you can develop the yield of wheat by exterminating

the black rust. Very little has been done. I do not know how much the department has done. In my State and also in Wisconsin and Minnesota, the States did some good work.

Dr. KELLERMAN. Yes, sir.

The CHAIRMAN. It does not do the country much good to eliminate the black rust in Iowa, Wisconsin, and Minnesota unless you eliminate it all over the country. For that reason Federal money was appropriated with the hope of accomplishing something. If the rust spores can be carried 200 miles in the air, however, it will not do much good to have the disease exterminated in Iowa and later carried into Iowa from Illinois, or some other State. It seems to me that, with the number of agents, experts, and others traveling over the country, there ought to be some way of carrying this information to the people and getting them interested in the work. It will not take very long, at least, to try it out. You should concentrate every effort on this particular thing, because it is of so much importance. All the work, of course, is important, but some features are more important than others, and I think this is about the most important work you have.

Dr. KELLERMAN. We regard it as very important, Mr. Chairman, but it is more a question of what can be done in the most effective way. If we take the area that suffers the most severe losses and clear it up first we believe we will be making very effective progress. The other way, as I said a moment ago, was to try to clean up the entire country. To clean up the entire country is such an enormous undertaking, and the interest in that kind of clean-up is so slight in the southern and eastern sections that at this time we could not get the enthusiastic support of the entire public that we get in the West.

The CHAIRMAN. This morning we were discussing the citrus canker. Suppose you had confined your interest to Florida and let the rest of the country go, you would have accomplished little. If you are going to handle this properly, you must handle the whole country in order to accomplish anything. If you can devise some plan whereby you can do some effective work, very well, but I am afraid this piecemeal proposition will result in simply throwing away money.

Dr. KELLERMAN. We do not feel that there is any waste of money. We do not propose, Mr. Chairman, to stop with cleaning up the spring-wheat area.

The CHAIRMAN. But if the spores are in Missouri it is of little use to clean it out in Iowa, because the spores are driven over from Missouri into Iowa and cause just as serious damage as though the rust had originated in our own State.

Dr. KELLERMAN. That is possible but, as we say, our field experiences in the last three years has indicated that the black-rust epidemics are, after all, rather closely confined to the places where we find the common barberry. We find, as we get a few miles away from areas where barberries are growing, that black-rust infections get quite light; while they are not absent, still they are not severe.

The CHAIRMAN. I will give you an instance: In my own State a year ago we raised 20 or 25 bushels of oats to the acre. We had favorable weather conditions, no heavy dews, but dry and cool weather. Wheat went 20 to 25 bushels to the acre. This year we had the dew and the hot weather a few days before the wheat matured, and about 8 or 9 bushels was all it went to the acre.

Mr. LEE. Was that due to the black rust?

The CHAIRMAN. That was due to the black rust; yes.

Mr. LEE. We had the same experience, but without any black rust.

The CHAIRMAN. You have black rust. Every State in the Union has black rust. They tell us that they have not the black rust in Virginia, but I went out in the fields in Virginia and examined them last summer. They are now beginning to believe they have the black rust. The doctor that is here agrees with me. It takes years before it is discovered. We discovered it in Iowa in 1878.

Dr. KELLERMAN. Undoubtedly stem rust is one of the reasons why winter wheat is grown in many different places where spring wheat is not profitable.

The CHAIRMAN. I wish you would give further consideration to this and see if you can not work out some plan.

What about this corn item, that "\$40,000 shall be set aside for the study of corn improvement and methods of corn production"?

Dr. KELLERMAN. That is merely the continuation of our existing work.

The CHAIRMAN. What are you doing now, and what do you expect to do with the money next year?

Dr. KELLERMAN. That represents the continuation of the present work of breeding for better types of corn, more productive corn, and also certain experimental investigations of certain kinds of corn culture.

The CHAIRMAN. How is that conducted?

Dr. KELLERMAN. Almost entirely in cooperation with corn planters in different parts of the country. We are cooperating with the corn farmers, taking the different varieties of corn, and growing them under the direction of our corn experts.

The CHAIRMAN. By the farmers themselves?

Dr. KELLERMAN. By the farmers themselves.

The CHAIRMAN. You might describe what arrangements are made with the farmers?

Dr. KELLERMAN. These are merely informal contracts with the farmers by which they agree to handle the work under the direction of our corn experts, and a certain portion of that corn is available for the department's use.

The CHAIRMAN. The farmer enters into a contract to plant so many acres? How many acres?

Dr. KELLERMAN. I think most of those are in about 4-acre lots. Do you remember, Dr. Taylor?

Dr. TAYLOR. They range from an acre to 10 acres, depending on the number of crosses and selections that are to be tested.

The CHAIRMAN. Trying out the various types of corn?

Dr. TAYLOR. Breeding and field testing; the types in the North, for instance, for early maturity, as in Wisconsin, New York, and Massachusetts; in the farther South, for large yield and for insect resistance; that is, weevil resistance. Those are examples merely.

The CHAIRMAN. Are there any other items that you care to refer to? If not, we will go over to item 94, on page 88, "To enable the Secretary of Agriculture to meet the emergency caused by the existence in the United States of flag smut of wheat, take-all," and so forth, \$50,000.

Dr. TAYLOR. There is no change in that.

The CHAIRMAN. You might state briefly what you are doing, what you expect to do, what results have been obtained, and what may be expected.

Dr. KELLERMAN. You are probably familiar with the unexpected discovery of these two diseases, take-all and flag smut. Take-all is the Australian name, coming from the fact that under the Australian conditions it sometimes takes all the wheat in the field.

Mr. RUBEX. It covers a good big territory?

Dr. KELLERMAN. The losses ordinarily are not so severe as the name would indicate, although it is regarded as a serious disease in Australia. It is a soil-infesting disease.

The flag smut is also an Australian disease, and is probably more serious in its effect on yield, or probably would be more serious in this country. The areas found infested in southern Illinois were quarantined at the suggestion of the department. The department has taken no quarantine action, but the States of Indiana and Illinois have taken very effective action in preventing the movement of any grain or straw out of any area showing the disease. Our specialists have cooperated in that in locating the diseased areas and making sure of the identification.

The CHAIRMAN. Are these surveys made by the State authorities or under the supervision of the State authorities?

Dr. KELLERMAN. The surveys were made by our own men only, for at that time only our department men were familiar with these diseases.

The CHAIRMAN. The language in the act was somewhat different from what appears here. It states here "to be used in cooperation with the Plant Disease Survey, investigation, and control authorities of the several States."

Dr. KELLERMAN. That work has been in cooperation in all cases with the men in the different States, although the work of identification and the preliminary work of the surveys was handled entirely by our own people.

The CHAIRMAN. It is under your control and supervision?

Dr. KELLERMAN. It is under our supervision.

The CHAIRMAN. You arrange whatever cooperation is to be had?

Dr. KELLERMAN. Yes.

STATEMENT OF DR. WILLIAM A. TAYLOR, CHIEF OF THE BUREAU OF PLANT INDUSTRY, DEPARTMENT OF AGRICULTURE—Continued.

Mr. RUBEX. I would like to ask a question about item 95, page 88, "for the investigation and improvement of tobacco and the methods of tobacco production and handling." Do you receive many inquiries as to how to handle tobacco after it has been raised—to prepare it for use, and so on?

Dr. TAYLOR. For curing it on the farm?

Mr. RUBEX. Yes, sir.

Dr. TAYLOR. Yes; particularly in territory where tobacco growing is new.

Mr. RUBEX. I have a friend at home who is a great user of tobacco. He smokes incessantly. This year he concluded he would raise his

own tobacco. I sent him some seed and he raised the tobacco. I believe it was last year. After it had matured he and his son sat down to smoke it and it pretty nearly took them out of the top of the house. He wrote to the Department of Agriculture for some method by which the tobacco could be made mild and pleasant to smoke. He received a letter, he said, from the Department of Agriculture which told him to take the tobacco and dampen it, put it in boxes, and put it down in the cellar or some place and let it stay there for two years. Now, when he got to the two-year proposition, as he was about 70 years of age, he said he would stop, because he knew he would be dead before the tobacco got so he could use it.

Mr. LEE. He got the wrong kind of seed.

Mr. RUBEY. I wondered if that came from your department, and if that was the only way to make tobacco mild and pleasant to smoke.

Dr. TAYLOR. He may not have grown the wrong kind, but he may not have handled it right during the curing process after the harvest.

Mr. RUBEY. There are some things that we used to hear about which got better with age, and I wondered if that was true of tobacco.

Dr. TAYLOR. I understand that it is necessary for the production of fine qualities of tobacco to age it; that there has been not short cut developed for effective curing.

Mr. RUBEY. That was all I wanted to ask about it.

The CHAIRMAN. How about item 96, "for the breeding and physiological study of alkali-resistant and drought-resistant crops?"

Dr. TAYLOR. There is no change in that, Mr. Chairman. That is our work covering the breeding and development of crops that will endure alkali and drought to a greater or less extent.

The CHAIRMAN. What have you done?

Dr. TAYLOR. Out of this has come, and there is still in progress, the development of the Egyptian cotton industry in the Southwest which roots back into this item.

The CHAIRMAN. What do you select to be planted on the alkaline land in the North?

Dr. TAYLOR. On strongly alkaline land, I do not know of any crop; some of the sorghums as forage crops, where the land is not too alkaline, come through.

The CHAIRMAN. How about timothy, clover, grass, corn, and oats?

Dr. TAYLOR. Clover, not. Timothy, I think, is rather more effective than clover. On strong alkaline land we have no crop—no economical crop—which can be recommended for planting. The correction there must come primarily through soil treatment where that is possible. Sometimes it is accomplished through drainage and the washing out of the alkali accumulation in the soil with the drainage water.

The CHAIRMAN. Do you know of any other treatment than draining or washing it out?

Dr. TAYLOR. No, sir; not a practical treatment.

Mr. LEE. If you have that kind of soil, you must sell it and move South.

The CHAIRMAN. What do you expect to do with this appropriation?

Dr. TAYLOR. We have made very definite and distinct headway. We were prepared to furnish for the airplane service that long-staple

fiber for its planes, which would have been required had the war continued this year. That supply grew out of this item, in the form of long-staple cotton, which was suitable for the manufacture of airplane fabrics similar to those made from Sea Island cotton.

The CHAIRMAN. That grows on alkaline land?

Dr. TAYLOR. On mildly alkaline soils.

Mr. LEE. Is that Arizona?

Dr. TAYLOR. Yes, sir.

The CHAIRMAN. That is the result of your investigations?

Dr. TAYLOR. Yes; the Egyptian-cotton industry of this country, which we are continuing to improve and work upon, rests primarily on these investigations.

Mr. CANDLER. Where is that especially grown?

Dr. TAYLOR. In the Salt River Valley of Arizona, the irrigated territory; and the arid Southwest and West is this year showing a capacity to produce that same type of cotton in good yields and with fine staple.

Mr. CANDLER. That crop has increased quite rapidly in that section, has it not?

Dr. TAYLOR. Yes, sir.

The CHAIRMAN. The department was conducting some experiments in Salt Lake a number of years ago. Is anything being done there now?

Dr. TAYLOR. I think that was a reclamation project.

The CHAIRMAN. I think so.

Dr. TAYLOR. We are not connected with that.

The CHAIRMAN. You are confining yourselves to cotton? That is the only plant you are working with?

Dr. TAYLOR. We are working with quite a large range of crop plants.

The CHAIRMAN. Item 97, page 90, "for sugar-plant investigations, including studies of diseases and the improvement of the beet and beet seed."

Dr. TAYLOR. That includes the study of diseases of both beet and cane, the encouragement of sugar-beet seed production, and investigation and encouragement of the production of cane and sorghum sirup. No increase is recommended in this item.

The CHAIRMAN. What is this money being used for?

Dr. TAYLOR. That work is proceeding in the West, where you may recall the country faced a serious emergency when our foreign supply of sugar-beet seed, upon which we had relied prior to the war, was cut off.

The CHAIRMAN. What progress has been made in that?

Dr. TAYLOR. Very encouraging progress has been made. This year we produced, according to my recollection, about one-third of our national requirements, where before the war we produced none.

The CHAIRMAN. You mean the country as a whole?

Dr. TAYLOR. Yes, sir.

The CHAIRMAN. Is the department doing that?

Dr. TAYLOR. In the experimental studies, determining the methods.

The CHAIRMAN. Out in the stations?

Dr. TAYLOR. In cooperation with the men in commercial production—

The CHAIRMAN. With the State stations?

Dr. TAYLOR. Both the State station and the large sugar companies which are endeavoring to protect their supply.

The situation with regard to the production of cane sirup is perhaps illustrated by the samples which are here, to which Mr. Lee calls attention.

The CHAIRMAN. What progress are you making in that?

Dr. TAYLOR. Very definite progress has been made in securing, introducing, and testing varieties of cane, specifically for sirup (in distinction from sugar) production. The work which was partly conducted by this bureau and partly by the Bureau of Chemistry under a similar provision has resulted, I think, in a very distinct improvement in the method of manufacturing the sirup.

The CHAIRMAN. You have nothing to do with the manufacture?

Dr. TAYLOR. No; except to the extent of determining how the newer varieties will work out and so of determining their value for sirup production.

The CHAIRMAN. What is the balance of the money used for?

Dr. TAYLOR. The largest item there is this \$12,500 for experimentation upon cane and sorghum sirup production, which has been done chiefly in Arkansas and Tennessee.

The CHAIRMAN. You set aside \$10,000 for sugar-beet seed work and \$12,500 for sirup, or \$22,500. Deducting that from the \$94,115, what do you do with the \$71,615?

Dr. TAYLOR. The large items there and the pressing ones are those covering the sugar-beet nematode disease of the irrigated West during the last year, and the mosaic disease of cane, which you will perhaps recall was brought to our attention from Porto Rico during the war. That item was inserted in the bill for stimulating agriculture to meet that emergency. The disease in Porto Rico was found to be much more widespread than had been supposed. It has proved destructive there in the portions that are infected, and I regret to say that in July last this same disease was found to be present and to have been present for several years in the Louisiana cane fields, and it has been located in several of the cane-growing States.

The CHAIRMAN. How much are you spending for the sugar-beet nematode work and how much for the sugar-cane disease?

Dr. TAYLOR. Most of the work in the mosaic disease of cane is covered by the \$20,000 which was carried over from the stimulating agriculture bill into this bill last year.

The CHAIRMAN. How about the remaining \$41,000?

Dr. TAYLOR. The sugar-beet nematode work, which cost \$10,000, was carried over also from the stimulating agriculture bill.

The CHAIRMAN. But I have reference to the \$94,000, after deducting \$10,000 and \$12,500, what is being done with the \$71,000?

Dr. TAYLOR. I have just accounted for \$30,000 of it. The remainder is used on the projects which are devoted to the investigation of such diseases of sugar beets as curly top, which is very troublesome in the West, and the study of the relation of the beet crop to the other crops that must be grown in rotation with it to make a sable sugar-beet production.

Mr. Chairman, I hardly know how to discuss the situation with regard to this particular item, for it has become clear since these

estimates were submitted that there will not be enough money here to carry forward the nematode work as vigorously as it ought to be, and it is doubtful whether there is enough to carry forward the mosaic disease of cane work as it should be to protect the national industry in the South this year.

The CHAIRMAN. You say it is very important?

Dr. TAYLOR. Yes, sir.

Mr. LEE. Mr. Chairman, before we leave this item, I want to say that Judge Park, of Georgia, sent this sirup to the committee for the committee to see.

The CHAIRMAN. This is a result of the investigation?

Dr. TAYLOR. One result. There are several factories.

Mr. CANDLER. The judge has been kind enough to furnish each of us with a sample.

The CHAIRMAN. I am sure the committee very much appreciates Judge Park's sending the sirup.

Mr. LEE. I just wanted to say that Judge Park, of Georgia, sent it; that is all.

Dr. TAYLOR. Item 98, on page 92, "For investigations in economic and systematic botany." There is no change in that.

Item 99, on page 92, "For the investigation and improvement of methods of crop production under subhumid, semiarid, or dry-land conditions." This is for dry-land agricultural work. We estimate an increase of \$10,000 here, primarily to meet the increased expenses of field operations in this work. Wages, costs of equipment, and transportation charges have increased, and some repair of buildings is needed, as well as the erection of an additional storage building at the Mandan field station, particularly to house the farm implements there.

We are asking for the restoration of the proviso formerly carried in this item:

That the limitations in this act as to the cost of farm buildings shall not apply to this paragraph.

The particular building involved is an implement storage building which will be needed at Mandan, the estimated cost of which, as near as we can approximate it on the basis of present conditions, will be about \$2,500.

The CHAIRMAN. Where is that building to be located?

Dr. TAYLOR. At Mandan.

The CHAIRMAN. What other buildings are contemplated?

Dr. TAYLOR. That is the only building we have in mind, but we have this to remember, that this subappropriation covers all the dry-farming field stations where there are buildings which could not be duplicated, if fire occurred, for less than \$3,000 or \$4,000, or, in some cases, \$5,000.

The CHAIRMAN. Doctor, we had this matter up when the last appropriation bill was under consideration. It seems that it was the general sentiment that we should not remove the limitations. It might be feasible to do it in certain instances. If you will specify just what is desired, and it is feasible, that might be provided for, but I judge from the action taken last spring that Congress would be opposed to removing these limitations entirely.

Mr. LEE. You mean to specify the exact amount?

The CHAIRMAN. I believe we had this up to \$1,500 last spring, and it was stricken out.

Dr. TAYLOR. No; the \$1,500 limitation now applies to us. That is the limitation under which we are working.

The CHAIRMAN. We raised it to \$1,500 from what amount?

Dr. TAYLOR. That has stood at \$1,500 for many years.

Mr. CANDLER. There was some specific item.

Dr. TAYLOR. Yes; in connection with the cotton station at Greenville, Tex. That was raised to \$2,500, I think.

The CHAIRMAN. You are contemplating just one building.

Dr. TAYLOR. That is all we have in mind or that could be carried through with the increase we are asking.

The CHAIRMAN. What about this \$10,000 increase?

Dr. TAYLOR. That is to cover this building and the increased costs of carrying on these field operations, due to the increased cost of labor, of equipment, of transportation—those are the principal items.

The CHAIRMAN. We will take up item 100.

Dr. TAYLOR. Item 100, on page 94, "for investigations in connection with western irrigation agriculture," is the experimental work upon the Government reclamation projects. We need an increase of \$10,000 for the same reasons as stated under item 99, except that there is no building involved in this case. It is a conservative estimate of the increased cost of carrying on the same amount of work that we have been doing.

The CHAIRMAN. These are investigations in connection with farming under irrigation?

Dr. TAYLOR. Yes; on the Government reclamation projects; that is, the solution of the specific problems which confront the settlers upon these Government projects.

The CHAIRMAN. We have been at this a long time. We started in 1911.

Dr. TAYLOR. Yes, sir; this work, as you may recall, was originally requested by the Secretary of the Interior, for the Reclamation Service, to provide a basis for the development of agriculture on those projects, the farmers there being debtors to the Federal Government for the costs of providing water for the lands.

The CHAIRMAN. Do you experiment to determine what plants do the best?

Dr. TAYLOR. Yes, sir; what crops to grow, what methods of culture and rotation to practice, and what methods of irrigation to follow. And this brings to my mind a case in which we are experimenting in the control of alkali in the soils on one of these projects by the drainage method. This work is the special agricultural experimentation on the Government reclamation projects which is not covered and provided for by the States.

Mr. CANDLER. It is entirely within the lands of the Reclamation Service, controlled by the Government itself?

Dr. TAYLOR. Yes, sir.

Mr. CANDLER. And it is for the purpose of aiding the settlers who have gone out there to take hold of these projects on the Government Reclamation Service?

Dr. TAYLOR. Yes, sir.

The CHAIRMAN. Doctor, the sentiment is quite general that we should reduce expenditures rather than increase them. I think it

will be necessary to make a number of cuts in the estimates; we will have to find some place where we can cut down. Is it not possible, as this work has been going on all these years, to cut this appropriation somewhat?

Dr. TAYLOR. I would not know where to suggest a cut.

The CHAIRMAN. We want to take care of all the important and necessary work.

Dr. TAYLOR. I do not know where to suggest a cut in these estimates, Mr. Chairman, that would not do serious harm, for we have already been through the operating room with respect to these estimates.

The CHAIRMAN. But the fact is that your operating room, through which you have passed, added about three and a half million dollars, whereas another department of the Government directs that appropriations be cut. I believe that sentiment is quite general. You, of course, appreciate the condition of the Treasury and the demands upon it, and I believe, if possible, we should cut appropriations as much as possible. I think we all agree, however, that we should be liberal with this one department.

Dr. TAYLOR. We have endeavored to hold these estimates definitely to an investment basis, that is, a wise investment of public funds in productive activity.

The CHAIRMAN. It has occurred to me that in an item like this, where we have been appropriating on an average of \$72,000 a year for 10 years, might possibly stand a little cut.

Dr. TAYLOR. I would not know where to suggest it in this item, sir, without damaging impairment of the work.

The CHAIRMAN. Let us take up item 101, page 95, "for the investigation, improvement, encouragement, and determination of the adaptability to different soils and climatic conditions of pecans, almonds," etc.

Dr. TAYLOR. This is an item which in this form is new this year. This is the first year of operation under it. It enlarged the work of the improving of the pecan and various other problems affecting pecans in the South, for which the department previously had been expending about \$9,000 a year.

The CHAIRMAN. How are you getting along with pecans, almonds, walnuts, and other nuts?

Dr. TAYLOR. In the case of pecans very distinct progress has been made. With the others the work is just beginning.

The CHAIRMAN. Practically all the money is expended for the investigation of pecans?

Dr. TAYLOR. No, sir; about \$11,000 out of the \$20,000 is allotted this year for the pecan work.

The CHAIRMAN. Your method is successful as far as pecans is concerned?

Dr. TAYLOR. Very gratifying progress has been made.

The CHAIRMAN. How about the other nuts?

Dr. TAYLOR. With the others the work is just beginning.

Mr. CANDLER. What is the character of the work?

Dr. TAYLOR. One of the serious problems being attacked is the question of the failure of the almonds of the Pacific coast to set their crop after the blossoms are fallen. It is a question of cross-fertilization of

the blossoms through the interplanting of suitable varieties to fertilize each other. Some of the almonds apparently are self-sterile in their flowers, requiring the pollen from flowers of other varieties blooming at the same time in order to set crops, if the weather conditions at the blooming time are at all unfavorable.

Mr. CANDLER. Is this work being done in the West?

Dr. TAYLOR. The almond work is in the West.

Mr. CANDLER. Where is the pecan work?

Dr. TAYLOR. In the South, principally in Georgia, to some extent in Florida and Mississippi, and certain extensions of that work are carried on in Louisiana and Texas.

Mr. CANDLER. That is the extreme southern part of Mississippi?

Dr. TAYLOR. Yes, sir.

Mr. CANDLER. Where they are raising this paper-shell pecan.

Dr. TAYLOR. Yes.

AFTERNOON SESSION.

SATURDAY, DECEMBER 13, 1919.

Mr. LEE. Mr. Tucker, of the California Almond Growers' Exchange; Mr. Linton, of Saginaw, Mich., president of the Northern Nut Growers' Association; Dr. Robert T. Morris, of New York, of the Northern Nut Growers' Association; and Mr. Joe Patterson, of Georgia, of the National Nut Growers' Association, would like to be given a short hearing next Tuesday afternoon, if possible, not to exceed an hour or 45 minutes.

Mr. McLAUGHLIN of Michigan. If they are in town they could be heard.

Mr. LEE. Mr. Patterson is the only one that is here. I take it that you know this other gentleman, Mr. Linton, Mr. McLaughlin?

Mr. McLAUGHLIN of Michigan. Yes.

The CHAIRMAN. How much time will they require?

Mr. LEE. I think one hour will be sufficient.

Mr. McLAUGHLIN of Michigan. Could they wait until a later day just as well, for this reason: The sugar bill has just come over from the Senate and is before this committee now, and it should be taken up as soon as possible. Of course, that is under the control of the chairman.

The CHAIRMAN. I want the committee to decide. I understand that the sugar bill must be given attention before we adjourn.

Mr. LEE. I would like to accommodate these gentlemen on Tuesday afternoon.

The CHAIRMAN. Of course, they are in town and want to be heard.

Mr. LEE. One of the gentlemen is from California and wants to go home during the holidays and will, of course, have to start soon after next Tuesday.

The CHAIRMAN. Can you [addressing Mr. Patterson] be here at 9 o'clock Tuesday morning?

Mr. PATTERSON. Yes, sir.

The CHAIRMAN. Without objection, we will hear you on Tuesday morning at 9 o'clock.

Mr. PATTERSON. Thank you very much.

(The statements of Tuesday, December 16, in reference to this item are inserted at this point.)

Tuesday, December 16, 1919.

The committee met at 9 o'clock a. m., Hon. Gilbert N. Haugen (chairman) presiding.

The CHAIRMAN. The committee has met this morning to consider an appropriation for the nut industry. Mr. Patterson, if you wish, you may control the time and present the witnesses.

STATEMENT OF MR. J. M. PATTERSON, OF PUTNEY, GA., REPRESENTING THE NATIONAL NUT GROWERS' ASSOCIATION.

Mr. PATTERSON. Mr. Chairman and gentlemen, the ordinary man thinks of a nut as associated with his excursions in the fall into the woods to pick a few hickory nuts, and I imagine there are comparatively few people in the United States who think of the nut as a commercial industry, but it has arrived at that stage today. The chief commercial nuts are the almond, the Persian walnut, and the pecan. These industries are represented in an organized way by the Northern Nut Growers' Association, the Western Walnut Growers' Association, the Almond Growers' Exchange, and the California Walnut Growers' Association, and the National Nut Growers' Association, which represents the pecan.

There are various matters which we would like to bring out briefly, and I would like first to introduce to this committee Dr. Robert T. Morris, of New York, who is familiar to you as a surgeon, and whose interest in nut culture is not commercial, but purely scientific. I am am going to ask Dr. Morris to tell this committee what he thinks of nuts as food, and to discuss any other phases of the question he desires to discuss.

The CHAIRMAN. Thank you, Mr. Patterson. We will be glad to hear Dr. Morris.

STATEMENT OF DR. ROBERT T. MORRIS, OF NEW YORK CITY, N. Y.

Dr. MORRIS. Mr. Chairman, my interest is wholly scientific. I have no commercial interest whatsoever, and I have personally expended several thousand dollars in work of the sort that should be done by the Government, and a good many other men are doing the same thing in making investigations into nut culture. There are men who come to me to ask me to use my influence with the Rockefeller fund, the men in charge of it, and the Carnegie fund, for appropriations for investigations into nut culture. This is the coming agriculture. The reason for that is because a tree will stand for 100 years without exhausting the soil. It requires very little labor for collecting the crops, and it will produce to the acre more nitrogen, oil, and starch than any other crop. In some parts of the world the nuts form the staple diet for six months of the year. In some parts of Europe the chestnuts form the principal diet and also in the mountainous districts of China; in fact, in a large part of the mountainous districts of Europe and Asia nuts form a staple food crop. They take the place of the potato.

We have not felt the need in this country because we had labor enough, and we could turn over our lands and raise our annual crops

without great expense. The time has now come when we have got to raise to the acre more protein, more fat, and more starch than can be raised with the labor at our disposal, and I happened to bring along with me a book which gives some statistics, very briefly, and I can read a page from this book. This book is entitled "The Itinerary of a Breakfast," by J. H. Kellogg. Kellogg is a man who is more or less visionary, but, incidentally, all the scientific work of this sort that he presents is extremely valuable, for the reason that he employs the most expensive experts for his laboratory work, his chemical work, and all that sort of thing. Kellogg himself is more or less of a visionary, but you have to have visionaries to bring things forward and find out the real merit, and when we come to quotations such as I am going to use here they mean the result of work of highly paid experts, and the statements I am giving you here are agreed to by the chemists throughout the world, because they have been presented before scientific bodies in different parts of the world. One pound of walnut meats equals in food 4 pounds of lean beef. I will save the time of this committee by making only a few quotations.

One pound of walnut meats equal 5.51 pounds of veal in food value.

One pound of walnut meats is equal to 13.51 pounds of oysters, 22 pounds of lobsters, and 5 pounds of eggs. The great economic importance is best shown by comparing the amount of food which may be annually produced by an acre of land planted to nut trees, and the same area devoted to the production of beef. Two acres of land and two years are required to produce a steer weighing 600 pounds. The product of one acre for one year, therefore, would be 140 or 150-pound steer. The same land planted to walnut trees would produce an average of at least 100 pounds per tree per annum for the first 20 years.

I could quote more extensively but I just want to quote enough to give you a clue of what we are after. I think that is the essential point that I would make.

Now, the work of finding the trees that are best adapted to different soils, the experimental work required for developing the industry, means a great deal of annual expenditure. I have expended a good many thousands of dollars myself in order to find what trees will grow best in Connecticut; what I can grow as a commercial crop in Connecticut.

The very first question of your committee will be: "Well, what have you got out of it up to date?" Now, I will tell you. The chestnut blight has wiped out practically all of our American chestnuts. I set to work and got 26 kinds of chestnuts from all parts of the world to find what ones resisted blight, and I found that four different kinds resisted naturally the blight pretty well. One of these was a great big coarse chestnut that came from Northern China, not of very much use except for cooking. They use it for food in place of the potato in China. Another one was our little American chinkapin. Now, the big Chinese one is too coarse for the American market, and the American chinkapin is too small for practical purposes. I crossed them or hybridized them. I also crossed the Chinese one that resisted the blight very well with our American chestnut. The various experiments required several years of time.

I had to have my employees carry on the work with me and for me, incidentally, of course, with their other work, and out of that I have developed a very large number of hybrid chestnuts. Out of the very large number of hybrid chestnuts, several thousands, most of them, are worthless.

The reason why they are worthless is because nature tries always to establish a mean type, an average type in everything, among men as well as among plants and among animals, so in making hybrids, nature is all the way throwing back from the remarkable kind to the mean type, so that it becomes necessary to make a great many hybrids. I made thousands, and out of that lot I have three that are immensely valuable. They resist the blight, they are large, they are fine in quality, and they combine the good qualities of chestnuts which are desirable. What have I done with these three kinds? I have made a present of them to a commercial nut grower. Mr. J. F. Jones, of Lancaster, Pa., whose whole nursery business is devoted to the growing of nut trees. He is a specialist in grafted nut trees. So, after all of this work and expenditure, I have personally made a present in the interest of public service to a commercial dealer of a fine hybrid chestnut which I have developed, and which will now go out to the world.

They will help add to our food supply. I am quoting just one instance for the sake of brevity, in order not to take up the time of the committee. I might quote many other instances, but this will open up a light of questioning, and I would like to answer any questions.

Mr. PURNELL. I would like to ask the relative food value of the various nuts.

Mr. MORRIS. I have that right here, briefly, I think.

Mr. PURNELL. You gave the food value of the walnut, and I wondered how it compared with the others.

Dr. MORRIS. I can give you that. I can make a statement about it offhand, but it will not be absolutely accurate. We have two classes of food nuts, one represents a high content of protein and fats. That is the pecan hickory, as an example. On the other hand, we have the group representing a very large starch content. That would include the chestnuts, for example. There are a great many nuts of the high protein group and a good many kinds of nuts of the high starch group and each has its relative position in regard to the food supply of the world, and we have to find where these various kinds can be raised to advantage. Does that answer your question?

Mr. PURNELL. I think so.

Mr. LEE. Can the pecan be grown in Connecticut?

Dr. MORRIS. Yes: we do not know to what extent the pecan may be grown in Connecticut, and that is one of the things to which I have gone to expensive experimentations to determine. I have had many hundreds of dollars' worth killed because I found that they did not come from the right pecan belt. I had many hundreds of dollars worth prove unprofitable because I did not select the right kind. I have found a few that will grow in Connecticut, and that means a great extension of range of this food supply, and that is one of the fields for investigation on the part of a paternal Government, as will be done in Germany. This personal expenditure

on my part of many hundreds of dollars has been for the purpose of seeing if this source of food supply could be extended as far north as Connecticut, a question not yet settled.

The CHAIRMAN. Do you expect to grow them as far north as Connecticut?

Dr. MORRIS. Yes; there is a very fine pecan tree in the Capitol grounds at Hartford, but there is no pecan tree near it to furnish pollen and that is probably not a self fertilizing tree. The chief trouble with pecans there would be the difficulty of getting them to ripen, because the required ripening period is long. I have to find kinds that will ripen there, and most varieties, coming as they do from farther south, require 30 to 60 days more of sunshine than we have in Connecticut before frost.

Mr. McKINLEY. We have always had pecan trees in Illinois. Is not that as far north as Connecticut?

Dr. MORRIS. No; I think you have pecans only on the southern and southwestern border of Illinois.

Mr. McKINLEY. We have them in central Illinois and along the Illinois River bottom. They are not thin-shell pecans like these.

Dr. MORRIS. Of course, you know about that better than I do. Wherever the pecan grows in an indigenous way, there it may be developed in a commercial way and in such a way as to give a very large return upon the expenditure of a small amount of labor to the acre. They told me down in Louisiana about an old colored man who worked very hard for years to support his family, and while he raised cotton and corn, he managed to be a fairly good provider, and now he is all crippled up with rheumatism and the poor old fellow can not work any more, but he makes six times as much as he ever did when he could work, because he set out some pecan trees. Now, that same history can be widely extended.

Mr. WILSON. Are not the best pecans raised in the South?

Dr. MORRIS. Yes; and that is another reason for investigation. You see we have got also to place the black walnut. That has an enormous range in the North.

Mr. WILSON. The southern pecan excels the California pecan, does it not?

Dr. MORRIS. In extractives that give quality, yes; but perhaps not in actual food value, except for the fact that where you have fine quality you have what we call vitamins, a chemical product that we have not placed yet in scientific chemistry, but what we call the vitamin gives zest to the eating of the nut.

Mr. PURNELL. How long does it take a pecan to bear?

Dr. MORRIS. Grafted pecan trees will sometimes bear in the nursery the year after they are set out. The Stuart and the Schley both have a record of producing filled nuts in a year after they were set out.

Mr. WILSON. You planted the tree, though?

Dr. MORRIS. These are all grafted.

Mr. WILSON. It takes four or five years, does it not?

Dr. MORRIS. No. Mr. Jones, for instance, having grafted his stocks with the Stuart and the Schley varieties found in the following year that he had Stuart and Schley pecans growing on those grafts.

Mr. WILSON. But not in commercial quantities?

Dr. MORRIS. Oh, no; please do not misunderstand me.

Mr. WILSON. That is what I am getting at.

Dr. MORRIS. From the serious side of the question, we should make comparison with apples. The various kinds of nuts, grafted trees, will bear about like apples. For instance, the Yellow Transparent apple will frequently bear in a year after it is set out. The Northern Spy usually in about 12 years after it is set out. So the Stuart pecan may bear in the second year after it is set out, and another variety may not bear until 12 or 15 years afterwards. They will range about like apples. The nuts are fruits like apples and will have practically the same biologic history. Commercially speaking pecan orchards must be 10 or 12 years old, from the time they are transplanted from the nursery to give profitable returns.

Mr. MCKINLEY. Doctor, compare a pound of the different nuts with the various meats in food value.

Dr. MORRIS. Yes. I happen to have statistics, for instance, on pecans alone. Pecans stand highest in nitrogen value. I did not mark the pages in this book because I did not know the committee would want this information, but I can turn to it in just a moment. I can state it in calories—heat units:

The almond in protein stands first with 21 per cent of protein, 54 per cent of fats, 17 and a fraction per cent of carbohydrates.

The pecan hickory, protein 11 per cent, fats 71 and a fraction per cent, carbohydrates 13 and a fraction per cent.

Mr. MCKINLEY. That would be more like fat pork.

Dr. MORRIS. Yes; but it is an available fat that is digested; in fact, the only thing that approaches the pecan nut in food value is bacon, and the pecan nut has a slightly greater food value than bacon. The chestnut, the pine nut, and also the hazelnut will furnish an enormous food supply for the people in the North.

Mr. MCKINLEY. In what kind of soil does the pecan nut thrive best?

Dr. MORRIS. It thrives best in alluvial, loam, well-drained river bottoms. That is where it belongs, but, like many other trees, under intelligent care it may be carried far out of its indigenous soil, like the apple. For instance, the Baldwin will grow in clay, will grow in sand, will grow in soil with an acid reaction, and many of the nut trees may be made to live far out of their natural, indigenous range and out of their natural soil, but that is a matter requiring expensive expenditure on the part of experimenters to determine. That is precisely one of the reasons why large funds should be at the disposal of the men who are getting the facts in this matter.

Mr. MCKINLEY. Doctor, if the pecan requires a rich alluvial soil, how is it that it thrives in Congressman Lee's district down in Georgia?

Mr. LEE. I want to know why it does not thrive in Mr. McKinley's district in Illinois. Is it for the same reason?

Dr. MORRIS. I do not admit the premises of this bit of levity. The premises are not correct. They are stated in a negative way. The positive fact is that the kind of pecan which thrives best in rich alluvial soil, grafted to some scrub stock that has learned to live on poor soil, will keep on producing the kind of fine nut that originally belonged to that variety.

Mr. McKINLEY. Aside from any joking, the point is whether the pecan should be planted generally on that kind of soil. Take it even in Illinois, the soil upon which most of the forests grow is not the better soil, but more of a clay soil.

Dr. MORRIS. There will be kinds that may be planted there to advantage, and when we find as a result of expensive experiment what stocks will thrive there best, then we graft those stocks over to fine types.

Mr. McKINLEY. And then you get the good nuts?

Dr. MORRIS. Then you get the fine nuts. The grafted top retains its identity just as the Baldwin apple or the seckel pear.

Mr. VOIGT. Can you graft a pecan onto any other kind of stock. I am ignorant about this matter.

Dr. MORRIS. That is a very appropriate question. No; you can graft it on any of the numerous varieties of pecan stock. But it so happens that it is not commercially practical to graft the pecan upon other kinds of hickory. However, the reverse is not true. We have 15 species of hickory in this country and hundreds of varieties, and almost any hickory will grow on pecan stocks, so that it is very valuable as a grafting stock for other kinds of hickories. The commercial dealers in grafting nut trees use the pecan very largely for a commercial stock for other kinds, just as in cherry trees they use another stock for many kinds of cherries.

Mr. PURNELL. Let me ask you another question, which may be a little out of line; but you are a doctor, and I would like to know as a matter of information. Nuts, as a rule, are hard to digest, are they not?

Dr. MORRIS. Yes and no. Nuts which are eaten between meals are apt to upset digestion. Nuts which are not thoroughly chewed are apt to be difficult of digestion. Nuts properly prepared are quite as digestible, if not more so, than meats; that is, nuts of the protein group and also nuts of the starch group.

Mr. PURNELL. What do you mean by being properly prepared?

Dr. MORRIS. At a number of the sanitariums where nuts are used in place of meats some are cooked, some are rolled or ground, and some are prepared by milling. There are various ways of preparing them for cooking so that they may become digestible. On the whole, as a general statement, they are quite as digestible as any of the meats or starches that we now use.

Mr. VOIGT. What commercial crop of nuts can you grow in Connecticut?

Dr. MORRIS. The nuts we grow commercially in Connecticut would be hybrid chestnuts, filberts, black walnuts, shagbark hickories, and some of the pine nuts, although I do not know of any of the pine nuts yet that have been put on the market from there.

Mr. VOIGT. Does it pay to grow hickory nuts on a commercial basis?

Dr. MORRIS. Yes, indeed. The shagbark hickories are selling at the present time for an abnormal price, \$14 a bushel for fine shagbarks. It would not do to quote any such price as that except under abnormal conditions, but they are now getting \$14, and it would be quite safe to say that the average crop of a good shagbark hickory tree would be 2 bushels per year.

Mr. LEE. Is that what we call the scaly-bark hickory?

Dr. MORRIS. Yes; the names scaly bark, shellbark, and shagbark are used indiscriminately with reference to the kind of hickory that has a trunk bark that shells off.

Mr. WILSON. What is the commercial value of walnuts?

Dr. MORRIS. As to the black walnut, Mr. E. A. Riehl, of Illinois, told me last year that he got \$8 per bushel for his black walnuts, and some of his trees had 14 bushels to the tree. If these trees were planted 17 to the acre, that would make them 50 feet apart, so you can estimate the food that would come from an acre of Mr. Riehl's land on that basis. No possible meat supply, no possible potato or other annual crop supply could approach in food value or in commercial value on such acre.

Mr. WILSON. Does that mean the walnuts in the shell?

Dr. MORRIS. No; that means the net result. He collected his walnuts, shelled them, and I do not know whether he got money for his shucks, but last year the soft outer husk of the black walnut was used by the dyers and had a commercial value, and the hard shell of the nut had a commercial value for gas masks and for similar purposes. The meat itself had a commercial value for food purposes: My recollection is that Mr. Riehl told me his black walnuts netted him \$8 per bushel and that he had 14 bushels to the tree. I am speaking from memory of what Mr. Riehl said to me.

Mr. McLAUGHLIN of Michigan. What kind of work do you desire to have done by the Government?

Dr. MORRIS. The Government needs to expend a great deal of money for the purpose of investigating the various nut problems which are now being investigated expensively by men who are commercially or scientifically interested and who are making the expenditures on their own account, in regard to finding the right soil for the right kinds, hunting up new varieties, hunting up or making hybrids, finding what ones are adaptable; and, in fact, the opportunity for expenditure in this large, new, coming agriculture is so great that I can hardly condense it in the form of a direct answer to that question.

Mr. McLAUGHLIN of Michigan. Are there serious diseases?

Dr. MORRIS. Yes; and those must be investigated.

Mr. McLAUGHLIN of Michigan. What are they?

Dr. MORRIS. There have been whole books written on the subject of diseases which would apply to nut trees, and an investigation and a knowledge of any one disease that could be had from our authorities on the subject might save any grower many thousands of dollars.

Mr. McLAUGHLIN of Michigan. Are the private growers making any progress in learning what the diseases are and how to treat them?

Dr. MORRIS. Yes; I have learned that I can not raise certain kinds of trees on my property in Connecticut to advantage. I have found, on the other hand, that I can raise things in my section that can not be raised in another section because of the diseases prevalent there.

The CHAIRMAN. We are grateful to you, Dr. Morris.

Mr. PATTERSON. To give you an idea, gentlemen, of the relative importance of the nut industry, I asked the Bureau of Crop Estimates to give me certain data regarding the three commercial nuts,

the almond, the walnut, and the pecan, up to date. I received these figures from the bureau last night. Just to give the committee an idea of the size of the industry, the almond crop this year amounted to 6,500 tons. The Persian walnut crop this year totaled 24,000 tons.

Mr. McKINLEY. Put some dollar values to that.

Mr. PATTERSON. Yes, sir. The almond crop is figured by the California Almond Growers' Exchange at \$3,000,000. The Persian walnut crop has been put by the California Growers' Association at \$15,000,000. We have not yet gotten the statistics for what we call seedlings or wild pecans. The Bureau of Crop Estimates does not have facilities for getting the facts segregating the seedling and the cultivated pecan. But the production of all pecans for the current year, as near as can be told to-day, is 45,615,000 pounds, of a value of something like \$9,000,000. Now, we are asking this committee to increase the appropriation for this year for the investigation of cultural problems pertaining to all nuts, for the Bureau of Plant Industry, represented by Mr. Taylor, who I am glad to see is with us this morning. And while the commercial nuts to-day are the almond, the walnut, and the pecan, the black walnut is coming to be quite prominent, and I am going to ask Mr. Thomas P. Littlepage, of this city, a lawyer by profession, and also a nut (laughter), to tell this committee what can be accomplished.

The CHAIRMAN. We will be glad to hear from Mr. Littlepage.

**STATEMENT OF MR. THOMAS P. LITTLEPAGE, OF WASHINGTON.
D. C.**

Mr. LITTLEPAGE. Gentlemen of the committee, I do not want to take up much time. As Mr. Patterson says, I am a lawyer in Washington and a farmer in Maryland. Out in Maryland they think I am a fine lawyer in Washington, and here they think I am a fine farmer in Maryland. So, being in that situation, I can say to this committee just a few words.

What you gentlemen would like to know is how well the Bureau of Plant Industry will spend this money if it is given to them and whether they really need it.

Mr. PURNELL. I think, Mr. Littlepage, there is something else we are going to have to know before that. We first want to know where we are going to get the money.

Mr. LITTLEPAGE. I can sympathize with that situation. That is my normal condition. [Laughter.] I happen to know something about how the Department of Agriculture spends the appropriations for nut work. I have gone over the whole country in looking over this nut question as a side hobby of mine. I have been through Illinois, and I will say, Mr. McKinley, that the State of Illinois has perhaps more wild northern pecan trees than any other State in the Union. Next comes Kentucky, and Indiana perhaps third. I have been over the country and am not now going to undertake to discuss these various details and problems, but I want to touch on the one point as to how the Department of Agriculture spends the money that it comes here and asks you gentlemen to give it.

I want to make this general conclusion in the beginning, that I wish I might have the committee's time to tell you more in detail about. I doubt if you gentlemen have ever appropriated money for the Department of Agriculture that is better handled, more carefully spent, with better results, than the money you have given them for these nut investigations. I happen to know a great deal about that both in the North, the South, the East, and the West, and the various problems and the importance of nuts, because it is my side hobby. The money has been well spent. They have not half enough.

There are as many problems, gentlemen, in connection with this big industry that is now growing, that is now starting—there are just as many problems as it is possible to have. Your timber problem is one of them; your soil conditions is one of them; your distribution of varieties and all of these things are a part of those problems. You gentlemen here have been eating the finest pecan that grows and yet throughout all the South are set thousands and tens of thousands of trees of worthless pecans, practically worthless, because when they were set out nobody told the growers there was a better variety or that theirs was not a good one. And there have been thousands and tens of thousands of pecan trees raised in one section of the country that, when taken into another section of the country, proved seriously subject to disease because nobody told them differently. Now, the Department of Agriculture has been doing some most wonderful work along the line of getting these facts together about pecans, walnuts, hazelnuts, and all these other varieties, and about that work I happen to know. I have not a dollar's interest in it except that I have a lot of pecan trees. I have a northern nut orchard out here in Maryland and some more down in Indiana, and I happen to know something about it. So I am merely speaking as an independent bystander who happens to know something about it.

Mr. WILSON. That Indiana nut is not any good, is it?

Mr. LITTLEPAGE. That goes into one phase of this. The northern pecan is separate and distinct in a way, that is, botanically speaking. The northern pecans are growing out in Indiana and Illinois. One of the finest pecans I have ever examined is the Niblack from southern Indiana. Another is the Busseron from Knox County, Ind., on the thirty-ninth parallel, near the western boundary of Indiana. Pecans grow away up in Rock Island, Ill., and on the banks of the Wabash in northern Indiana and all through that section. There is a type of wild pecan that grows on the banks of the Ohio River 9 miles south of Evansville, Ind., where there is a wild grove of 700 or 800 acres of exclusive pecan trees—one of the most beautiful forest sights I have ever seen.

Mr. McKINLEY. As I gather it, this class of pecan could be grafted on all these wild trees; is that right?

Mr. LITTLEPAGE. That nut on the table is a southern pecan, Mr. McKinley, known as the Schley. It is the famous Schley, now the leading variety, I think, that grows in the South.

Mr. McKINLEY. Will these thrive if grafted on to the northern trees?

Mr. LITTLEPAGE. Not up there. You might just as well set out orange trees. People to-day all through the north are buying thou-

sands and tens of thousands of southern trees and setting them out in the North, when they might just as well bring an orange tree and set it out up there. That is one of the questions in this nut situation.

Mr. WILSON. That is done through the nursery agents?

Mr. LITTLEPAGE. It is done through the nursery agents partly because they have not the information at hand. Nearly everybody to-day throughout the country is setting out nut trees, and they are buying where they can get them. The Department of Agriculture has done wonderful work in trying to straighten out this question, in telling where pecan trees will or will not grow. It is just as important to know where a thing will not succeed as it is to know where it will succeed. But they have not had adequate facilities nor enough money for this branch of the work. It now has an appropriation of something like \$20,000 a year for this purpose. It should have three times that much.

Dr. MORRIS. Speaking about fake advertising—

Mr. WILSON. That is what I had in mind to ask about. Are those agencies selling any kind of stock?

Mr. LITTLEPAGE. Those promoters are fellows we have been fighting through our nut-growers' associations for years, trying to keep them out and to clean up the situation. That is just one of the various problems connected with the industry.

As I said in the beginning, I just want to take a minute or two to say to you that I know how the Department of Agriculture spends this money, and I know that is one thing you would like to know—whether or not, if you give them more money, it is going to be spent right. I am here to say that it will, because I know the men in the organization; I know what they want to do with it, I know how they do it, and I know the men who are doing it.

The CHAIRMAN. Thank you, Mr. Littlepage.

FURTHER STATEMENT OF MR. J. M. PATTERSON, OF PUTNEY, GA., REPRESENTING THE NATIONAL NUT GROWERS' ASSOCIATION.

Mr. PATTERSON. I represent the National Nut Growers' Association and also the Paper-shell Pecan Growers' Association of Georgia. The former is a society composed of pecan growers; the latter is a commercial organization owning approximately about 5,000 acres of cultivated pecans, ranging from 12 years old down to those recently planted. For several years the Department of Agriculture has been conducting, and is to-day conducting, experiments in our orchards. These we are encouraging in every way and giving all the help we can, backing up the experiments by spending our own money to carry out on a large scale the experiments that are being conducted in a small way. The department men are doing splendid work. The only trouble is, gentlemen, they have not money enough to put sufficient men on to undertake the solution of all the problems that are troubling us.

You perhaps notice on the kernels of some of those pecans you are eating occasional black spots. That is what we call the kernel spot. We do not know what causes it; we do not know what it is. Some years 50 per cent of that variety (the Schley) will be affected, rendering the kernels bitter and unfit for consumption.

Mr. WILSON. Does it spoil the taste of them?

Mr. PATTERSON. Yes, sir; it makes the kernels bitter. I did not know those nuts had any spots until I opened the box and washed some of them a little while ago. That spot is one of the many problems. If there were sufficient funds, say \$50,000 or \$60,000, for the Bureau of Plant Industry for the next few years, it could put on enough scientific men to work out these various problems in the next five years; otherwise, in all human probability, the solution of all these problems with the present appropriations will take 25 years to work out. When you gentlemen remember that there are now something like 165,000 acres of pecan orchards in existence, and that pecan growing is a new industry, and that it takes 10 and 12 years to bring an orchard into commercial bearing (they tell you the trees will bear in a few years, which is all true, but it will only be a few scattered nuts; commercially, even in the South, in Georgia, where I come from, which is perhaps as favorable a section of the country for early bearing as any, we do not get commercial crops of nuts until 10 or 12 years after the trees are set out, and we set out 3-year-old trees), you will realize that it is a long, tedious process. Very often, when the trees mature, after 10 years or more of labor, we find some new disease, insect pest, or some other condition that, as practical men, we are not able to solve. It takes scientific men to solve such problems.

Speaking especially for the pecans, because that is my hobby, I want to call your attention to just a few more statistics and then I am through. The domestic production of the United States this last year, the total for the almonds, walnuts, and pecans, is estimated by the Bureau of Crop Estimates at 106,000,000 pounds. During the year ending July 1, 1918, which is the last year for which we have statistics, this country imported, in round numbers, 30,000,000 pounds of almonds, 11,000,000 pounds of Persian walnuts and, in addition, consumed all we raised. So you see this is a nut-eating country, but not yet sufficiently a nut-producing country to supply the domestic demand.

The walnuts have increased in value in the last 10 years between four and five times their annual production, and almonds about three and a quarter times. The pecan has come forward faster than any other and has increased ten times in 10 years. In other words, the production to-day is ten times what it was 10 years ago.

No man can tell what the total investment in nut orchards is, but it is well up in the millions; probably \$150,000,000 is invested in these various nut industries. All we ask, gentlemen, is that you make available a sufficient appropriation to the Department of Agriculture so it can put scientific men at work on these many problems in order that we can begin to get something like the maximum return from the great investment represented and from the long and tedious years of toil we have been through.

I see Dr. Taylor, head of the Bureau of Plant Industry, is here this morning. I would very much like to have this committee hear him. I am sure he can give you any information I have failed to give.

Mr. McLAUGHLIN of Michigan. Have the States been making any appropriations for the kind of work you wish to have done?

Mr. PATTERSON. No, sir; not that I know of, Mr. McLaughlin. We have tried to get some appropriations in Georgia and the State is

doing some little investigational work, but without special appropriation for pecans.

Dr. MORRIS. How about Michigan recently?

Mr. PATTERSON. Michigan has made a good big appropriation, something like \$50,000, Mr. McLaughlin, for planting nut trees along the public highways. At the convention at Battle Creek last week a representative of the Michigan Department of Agriculture explained about the effort Michigan was making to produce nuts along the highways.

Mr. McKINLEY. Take your 5,000 acres; what kind of land is that? What I am trying to get in my head is whether timberland is used or whether you have to have the best land.

Mr. PATTERSON. I would not take a piece of cut-over timberland and plant pecans on it as a gift. We have always purchased old plantations, Mr. McKinley, land that is cleared. A good deal of that kind of soil is badly exhausted and to build it up is quite a problem. It is one of the most important problems we have.

Mr. McKINLEY. Do you have to use fertilizer?

Mr. PATTERSON. We have used commercial fertilizer, but are now planting legumes, cowpeas, and velvet beans and plowing them under as a means of improving the soil. Lately we have discontinued the use of commercial fertilizer on account of its high cost. As soon as prices permit—we are making experiments with fertilizers best adapted to it—we expect to resume the use of commercial fertilizer in connection with leguminous crops.

Mr. JONES. What is the objection to the cut-over land?

Mr. PATTERSON. The stumps, to start with.

Mr. JONES. They interfere with cultivation?

Mr. PATTERSON. They interfere with cultivation. Then the lice, incident to the old roots, kill the pecan roots—just eat them up and kill the orchards.

Mr. TINCHER. Mr. Chairman, I understand there was only 40 minutes allotted to this hearing. I do not think we ought to start in hearing any member of the department on it, because we will have them here later.

The CHAIRMAN. We heard Dr. Taylor the other day on this item. Have you anything further to add generally as to the appropriation needed for nut investigation, Dr. Taylor?

FURTHER STATEMENT OF DR. WILLIAM A. TAYLOR, CHIEF OF THE BUREAU OF PLANT INDUSTRY, DEPARTMENT OF AGRICULTURE.

Dr. TAYLOR. Nothing, perhaps, except to say that nut culture is, as has been indicated, an infant industry. The almond and the Persian walnut are old-timers from the Old World; they have found a foothold on the Pacific coast.

Our nut-culture problems in this country are new. The wild trees, in a certain sense, are climbing out of the forests into the cultivated land, so that it is a new industry with big, potential possibilities which need to be worked out.

Mr. McLAUGHLIN of Michigan. The only suggestion I have to make is something for Dr. Taylor and the other gentlemen to take

up together. For some time we have carried an appropriation for the general investigation of nuts; and a year ago, or not long ago, we added another appropriation for pecans. Now, it seems to me, it is not advisable to add a separate appropriation for each of the nuts. And I suggest you figure out some plan by which an appropriation can be made for the general nut proposition. Would not that be a good idea, Doctor?

Dr. TAYLOR. Historically, Mr. Chairman, the situation is about like this: There was a specific proviso for the pecan, amounting to \$9,000, up until this year. As the result of a Senate amendment, \$11,000 was added to that and the authority was broadened to cover the various nuts so that the appropriation carries now \$20,000 for all the nuts. The department's estimate, made last spring for the work which the nut industry desired to have done, was \$40,000, and in conference the appropriation came through \$20,000. So that is, I think, the present situation.

The CHAIRMAN. Just one question, Mr. Patterson: Would you have objection to eliminating language that refers to any specific nut?

Mr. PATTERSON. No; we prefer it as it is carrying the appropriation for all the nuts, Mr. Chairman.

The CHAIRMAN. And not mention the pecan?

Mr. PATTERSON. That is the way it is now; yes. As it stands now there are two specific appropriations for pecan diseases and insects, small appropriations. We are not asking any increase in those, but this appropriation for the bureau which Dr. Taylor represents includes all nuts.

I want to say this, if you please: The other day I said Mr. Tucker, manager of the California Almond Growers' Exchange, would be present. By telegraphic communication with Mr. Tucker I found it was utterly impossible for him to get here. He is in Boston. I would like to ask permission for Mr. Tucker to file his statement with the committee.

The CHAIRMAN. Without objection, it is so ordered.

Thank you very much, gentlemen.

FRIDAY, JANUARY 9, 1920.

The CHAIRMAN. There are two Members of Congress from Texas in the committee room this morning who desire to be heard on the appropriation for the nut industry. Mr. Hudspeth and Mr. Briggs. We will be very glad to hear you.

STATEMENT OF HON. C. B. HUDSPETH, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF TEXAS.

Mr. HUDSPETH. Mr. Chairman and gentlemen of the committee. I appear before the committee this morning as the representative of the nuts of Texas, that is, the pecans. Under the appropriation that was made last session by this committee, raising the appropriation from \$8,000 to \$20,000, I have a letter here from the president of the Nut Growers' Association in which he states that the Government established an experimental station in Texas and under the grafting

that was done they have yielded a crop of \$100,000 where they were not yielding anything. In this letter he estimates if the work is continued throughout the waste places in Texas on the overflow bottoms that are now producing practically nothing, except just small pecans and the appropriation raised to \$40,000, that Texas alone will be producing in the next few years from \$5,000,000 to \$10,000,000 worth of nuts from this overflow land.

He takes occasion in this letter to thank this committee for the raise they gave at the last session from eight to twenty thousand, and I assure you gentlemen, from the knowledge I have of this man in charge down there (who is also connected with the Texas Agriculture Department), that it has been wisely spent.

Mr. McLAUGHLIN of Michigan. What kind of a station have they?

Mr. HUDSPETH. They have a station there experimenting in the growth of pecans and development in the grafting of large pecans on these wild trees that are now practically producing nothing. They also state to me, Congressmen, that where the wild growth only matures possibly every three or four years, by this method they have of grafting the pecan upon those trees, they will produce every year that the frost does not blight it. It matures later than the wild growth.

Mr. McLAUGHLIN of Michigan. Does a tree mature nuts the first year after grafting?

Mr. HUDSPETH. That is my understanding, that they will produce nuts the first year after grafting.

Mr. McLAUGHLIN of Michigan. How many men have been employed at that station?

Mr. HUDSPETH. They only have one, Mr. A. Caswell Ellis. He has been going over those waste places, those overflow bottoms, and taking those wild trees, as I state, that only bear possibly every three or four years and grafting on those trees a pecan that will bear every year.

Mr. McLAUGHLIN of Michigan. Do you know how \$20,000 was expended by the employment of one man?

Mr. HUDSPETH. There is one station. I take it Mr. Ellis has, of course, a great many men under him, but he is the chief director down there. This man Ellis certainly could not do all that work alone, you know.

The CHAIRMAN. They cover a number of States under this appropriation.

Mr. HUDSPETH. This appropriation covers the United States and they have established one station there in Texas which seems to be under the direction of Mr. Ellis, who, for many years, was engaged in this business under the agricultural department of Texas.

Mr. HEFLIN. How much did you say had been spent at that station?

Mr. HUDSPETH. I do not know how much has been spent at that station, but he says this:

Thanks to the good work of the Texas delegation, the appropriation for nut work was raised from \$8,000 to \$20,000. I am glad to say that one of the experiment stations that the department has started to work on is in Texas. This station, if supported by Congress, ought in a few years to revolutionize the nut industry in Texas. I know from my own personal experience with my top-grafted pecan trees that Texas has enough wild trees and overflow creek and river bottoms to be producing each year at a nominal cost a hundred-million-dollar crop of pecans.

Mr. McLAUGHLIN of Michigan. You say Mr. Ellis was for a long time employed by the State?

Mr. HUDSPETH. Yes.

Mr. McLAUGHLIN of Michigan. In similar work?

Mr. HUDSPETH. In similar work; yes.

Mr. McLAUGHLIN of Michigan. Can you account for the fact that in all those years he produced nothing, when in this one year, under Federal employment, he produced so much?

Mr. HUDSPETH. No; I can not. I do not know what he produced while he was under the State. The State made a very small appropriation for this work and I do not know what he produced under that, but this is what he has done under the Federal Government.

The CHAIRMAN. They are developing the paper-shell pecan?

Mr. HUDSPETH. Yes; the paper-shell pecan.

The CHAIRMAN. Is that a new discovery?

Mr. HUDSPETH. I have known of it in my State but two or three years—the paper-shell pecan. Mr. Ellis goes on to state:

The so-called English walnuts, the black walnuts, almonds, hickories, hazel nuts, chestnuts, and other nuts offer similar opportunities in every State in which agriculture or forestry is possible.

It is absolutely essential that this appropriation be continued and gradually enlarged. It is, of course, absurd to be trying to develop the nut industry in this vast empire on \$20,000. We spend millions wisely on animal industry, for example, and yet nuts, both on grounds of health and economy, can and soon will play as large a part in supporting our population as do animals.

I am no vegetarian, but know that a mixed diet is best and that nut trees will furnish several times as much nourishment per acre as will animal industry. By the application of a little science to the problems of varietal adaptation, methods of propagating, fertilizing, irrigation, harvesting, storing, marketing, etc., this Nation can soon produce a billion dollar nut crop on what are now largely waste hillsides, roadsides, and overflow bottoms.

As there are many nuts and many different sections of the country, the experiments must be broadened and those already planned, including the one in Texas, perfected. Therefore I write to ask if you will not personally see the Agricultural Committee at once and ask them to make an appropriation of not less than forty or fifty thousand dollars this time for the nut industry.

That is the work he has been doing down there, gentlemen.

Mr. TINCHER. How much is the State of Texas appropriating for this work?

Mr. HUDSPETH. I do not know what it is appropriating now, Mr. Tinchler, but it has been a very small sum. Until this man developed this paper-shell pecan, I will be frank with you and say the State of Texas did not think he was doing anything. But since he has developed the paper-shell pecan and grafted it on those wild trees and made them produce every year, although I have not been in the State legislature for two years down there, I would like to state that the State would wake up and make a better appropriation. That is what Mr. Ellis states, whom I know personally, a man who makes a study of those methods and who has made a success in grafting this paper-shell pecan on to those wild trees down there, that did not produce anything, on the overflow bottoms.

The money you gentlemen appropriated at the last session, this \$20,000, I do not know how much of that has been spent in Texas. I know they established one station down there and they have made wonderful development in the grafting of these pecans I have just

explained. There are other Members here from Texas, and I believe Mr. Briggs has a statement to make.

The CHAIRMAN. Thank you, Mr. Hudspeth. The committee will now hear Mr. Briggs, of Texas.

STATEMENT OF HON. CLAY S. BRIGGS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF TEXAS.

Mr. BRIGGS. Gentlemen, Mr. Hudspeth has rather fully covered the ground with reference to the nut-industry situation. I do not profess to be an expert in this field but I do know that in Texas, as in many other States of the Union, a great deal of attention has been given to this industry. But it requires direction; it requires education; and it requires the solution of some of the problems in order to get the best results in this country.

The nut industry is perhaps engaging more attention from the people generally, and there is a greater consumption of nuts in this country than ever before.

I have been interested in looking through the hearings already had before this committee, and I have noticed that the pecan or pecan-hickory industry has grown ten times greater in one year than it has in previous times. In other words, it is worth about \$14,000,000 to the Nation.

Pecans are not only used now in the States where they are grown, but they are used in all the markets in the United States. You will find them everywhere, and you will find that the nutritive value is being appreciated more and more by the people in these days of the high cost of living because you can get a greater amount of nutriment out of a small quantity of nuts than you possibly can out of almost any other food of other qualities and character.

Texas is interested, and so is the Federal Government with its power of comparing results throughout the Nation and collecting the information and getting the data which will enable the people to determine which is the best varietal adaptation of soil, the best methods of propagation and fertilization, irrigation, harvesting, marketing, and storing—all of the highest value now. In fact, I believe, not alone in Texas but in every other State in the Union where they grow nuts of any variety as well, it will be of inestimable value to this Nation to get an adequate appropriation for the carrying on of that experimental work.

Mr. Hudspeth stated that Congress allowed at the last session \$20,000 for that work. There were various estimates made of the amount needed. In one of the letters that came to me to-day, between \$40,000 and \$50,000 was requested. In another letter from one of the agents of the Department of Agriculture, in the State of Texas, it is estimated that if \$50,000 were appropriated by the Government for nut-industry development and experimental work that it would be of inestimable value.

Here I want to make it plain that this is not a Texas proposition. The Texas Representatives are interested, it is true, because of the great opportunities there for the development of the nut industry in Texas. But the almond industry in California, the hickory-nut in-

dustry in the North, the chestnut industry in the New England States and in the Middle Atlantic States; in fact, in the Central States, I think, it was testified to by the representatives of the Department of Agriculture you could get excellent results with pecans and varieties of hickory nuts, with walnuts, and nuts of other characters.

It is those things that are appealing so strongly now to the citizens of Louisiana and Florida, where the soft-shell variety of pecans are produced by careful cultivation bestowed upon the nuts, which are bringing in the market from \$1 to \$1.50 a pound in the shell for these large, so-called jumbo variety of soft-shelled pecans.

Texas has unlimited quantities of pecan trees all throughout my district, along the river bottoms, where these trees grow wild and have done so for years and years; and no utilization scarcely is made of them in many quarters except that the hogs get in there and eat the nuts, which does improve the quality of the pork, I will admit. But the grafting process which has been testified to can be employed with profit. I refer to the grafting of high-grade pecan stock upon these wild trees which will develop and bring forth high-grade pecans, because the strength of the tree itself will support the grafted stock upon it, and the graft will determine the nature of the nuts produced.

It is such facts, and teaching the farmers and teaching the people who live in those localities the value of that process, the means of combating any diseases that attack these trees, and the methods of marketing and putting the nut product before the consuming public, which is not only to the advantage of the people who grow these pecans, but of advantage to the users of the pecan nuts, because it enables them to be distributed freely throughout the country, gives a better nut, and reduces costs when produced in large quantities. All this justifies, it seems to me, in the highest degree a liberal appropriation from the Agricultural Committee and from Congress to further carry on this work, and I hope and feel that the committee will make an appropriation of at least \$50,000 for this purpose.

Mr. McLAUGHLIN of Michigan. Are these large areas where these nuts grow still in private ownership?

Mr. BRIGGS. So far as lands are concerned; I think all the lands are. I do not know of any pecan trees on State owned or public lands in Texas. I think all of it is in private ownership.

Mr. HUDSPETH. They do grow on the State lands.

Mr. BRIGGS. The State still owns several million acres of these wild lands and offers to sell small parcels of them on long-time payments. Texas offers her public lands for sale on the most advantageous terms; upon 40 years time, upon the payment of a small rate of interest, and many of those lands are even now offered for sale without requirement of settlement.

But all through the river bottoms, where the pecans flourish, these trees grow luxuriantly in vast numbers. The cultivated pecan belt, I think, is largely in the western portion of Texas, out around San Angelo, mostly, and in that section, where they raise some of the larger varieties of pecans. They raise many in my district, but they are not of the larger variety. Many of those pecans have very hard shells; they do not appeal to the public. They could be bought cheaply if they could be graded up. The pecan will sell in the open

market at from 25 to 50 cents a pound this year because the crop is very large. But if the stock had been graded up you could get a very high quality of pecans for that price, whereas you now have to accept just what the market offers and are available; unless you pay for the choice stock, which comes from small sections of Louisiana and in a larger degree from the States of Florida and Georgia.

Mr. VOIGT. May I ask a question right there?

Mr. BRIGGS. Certainly.

Mr. VOIGT. You stated you have the remedy down there. What do you want this \$50,000 for?

Mr. BRIGGS. We did not say we had the remedy; I did not say that.

Mr. VOIGT. I understood you to say you had the remedy.

Mr. BRIGGS. You are mistaken if you understood me to say that I had the remedy.

Mr. HUDSPETH. That was with regards to the screw worm proposition. I had two propositions.

Mr. BRIGGS. In the letter that I have from the Nut Growers' Association it refers to the fact that the Government last year undertook to establish under the appropriation, I think, made at the last session of Congress, an experimental station in Texas. That station has just begun its work, as I understand, and the problems are before them to be solved. The testimony before this committee by the expert of the Department of Agriculture indicated that fact—that the problems are all before the Government.

Mr. ANDERSON. You have the remedy now of grafting?

Mr. BRIGGS. Yes; but that is not the only remedy. That is an old remedy. They state that the pecan is very much like the apple tree in many respects. But that is not the only remedy. It is necessary also to find out what stock will grow best in the various sections. In other words, it has been testified that there is a pecan tree growing in the courthouse yard in Hartford, Conn. They have a fine pecan tree, but that pecan tree does not bear because it has no other tree near by from which it can draw the required fertilizing pollen.

Mr. HUDSPETH. Pardon me, but the climate of Texas is just as different in the various parts as it is in some Northern and some Southern States.

Mr. BRIGGS. Yes; but I am not referring only to Texas.

Mr. HUDSPETH. There are variations of altitudes of 9,000 feet in Texas.

Mr. BRIGGS. I am not asking this appropriation alone for Texas; this is a national nut industry and it is not confined in this appropriation to the pecan industry as was originally provided in the bill last session. There was carried in that bill \$8,000 for the pecan industry.

The CHAIRMAN. The pecan industry started in Georgia?

Mr. BRIGGS. I believe so. The appropriation was increased to \$20,000 and designated for the cultivation and development of experimental work for all varieties of nuts everywhere throughout this Nation. I think the pecan is a splendid nut, as is shown in the testimony of the Department of Agriculture experts, and is known generally from use; and other nuts are before the people for development; and teaching the people and giving them the benefit of the knowledge as to how to cultivate these nuts, is the main purpose of

the Government in spending this money along educational lines. I say, therefore, that it redounds to the benefit of every State of the Union, and the work ought to be carried on, because, in my opinion, it brings back the biggest return to the Nation of any investment that you can make, and, after all, that is the wisdom of the investment of money by Congress in any product whatever.

The CHAIRMAN. Thank you, Mr. Briggs.

(The committee thereupon proceeded to consider another bureau.)

FRIDAY, DECEMBER 12, 1919—AFTERNOON SESSION—CONTINUED.

STATEMENT OF DR. WILLIAM A. TAYLOR, CHIEF OF THE BUREAU OF PLANT INDUSTRY, DEPARTMENT OF AGRICULTURE—Continued.

The CHAIRMAN. How about item 102, on page 95, Dr. Taylor?

Dr. TAYLOR (reading). "For the investigation and improvement of fruits, and the method of fruit growing." By the way, I see this print has "method" of fruit growing. That word should be in the plural; it should be "methods" in the final text. We ask there an increase of \$5,000 specifically to make possible the undertaking of certain studies in the farm practice of fruit production; that is, the orchard practice, a topic which was covered for a time by the survey method in the Office of Farm Management.

Mr. ANDERSON. Is not that work already done?

Dr. TAYLOR. No; the reorganization of the farm management work, which has been made and put into effect involves the transfer of that type of work to the Bureau of Plant Industry.

Mr. ANDERSON. I do not know that it is just proper to go into the subject of the Bureau of Farm Management at this time, but I supposed that one of the things that would be done in connection with that bureau would be to gather together the various items relating to farm practice and management instead of separating them through the entire department.

Dr. TAYLOR. I think when you have the discussion of the Office of Farm Management reorganization, Mr. Anderson, that question will come out. Dr. H. C. Taylor has some very clear-cut ideas which I think are sound.

Item 103, "to cultivate and care for the gardens and grounds of the Department of Agriculture in the city of Washington." Under this item we maintain and care for the grounds of the department in Washington, maintain the greenhouses and propagating houses, the roads and drives, and the lighting and other features of the department grounds.

Mr. LEE. There is no change?

Dr. TAYLOR. No change there.

Item 104, page 97, "for horticultural investigations," covers our constructed work with the vegetable crops, and the estimates carry an increase of \$30,000 out of a total of \$101,940 provided here.

The first item is \$10,000 for the technical study necessary in the investigation of the storage of vegetables. This is being done very largely with facilities at Arlington Farm, where accurate control of temperature in storage rooms is now possible. It involves the maintenance and operation of the experimental storage plant. It covers the

whole question of the study of the effects of temperature upon vegetables to be stored for varying lengths of time—potatoes, celery, lettuce, and cabbage—the important staple vegetable crops.

The second item (on page 98 you will find it), is for Irish potato investigation, which is one of the most important vegetable projects, as this is our most important vegetable crop. It includes the improvement of Irish potato varieties, and especially under this increase it is desired to undertake farm practice studies in the production of potatoes, which have not yet been attacked.

The CHAIRMAN. What do you mean by farm practice studies?

Dr. TAYLOR. The determination of the best cultural practices in the important commercial potato producing regions of the country. They differ very greatly, depending upon the purpose for which the potatoes are grown, whether they dig them early, as in the South and in the Norfolk region, or for late crops and storage, as in Maine and Minnesota, Idaho, and Colorado; whether under a humid climatic agriculture or under irrigation agriculture, or on land reclaimed by drainage, as is California.

Under (c) \$5,000 for truck crop improvement. This applies to the existing project, which involves primarily the breeding of improved varieties of vegetables, of which we have considerable work under way but for which the increased cost of carrying on the work requires an enlargement of the fund.

The fourth item, \$5,000 for bulb-culture work, is to enable us to carry forward with full efficiency the very important bulb-culture work that is under way. If we are to reduce to a minimum the risk of the introduction of plant diseases from foreign countries, we must expect to provide our own supplies of these things, for which we now rely mainly upon foreign countries.

Mr. LEE. Holland, especially?

Dr. TAYLOR. Holland, especially. This work is well started. It has reached a stage where we are confident that large commercial results can be obtained from it.

Mr. CANDLER. We then can furnish our own bulbs, and not have to resort to importing them?

Dr. TAYLOR. Yes, sir. We can see the practical certainty of that possibility now with respect to narcissus and tulip. Hyacinths are rather further along and more difficult, but we believe it can be done and that the time is ripe for vigorous attack upon that problem.

Mr. CANDLER. We have been getting them heretofore from Holland?

Dr. TAYLOR. Largely from Holland, but to some extent from Belgium and England.

Mr. LEE. The few bulbs that we distributed this year, were they foreign?

Dr. TAYLOR. The congressional distribution this year of narcissus and tulip was, I believe, entirely from our bulb garden at Bellingham, Wash., which is the basis of this work.

The CHAIRMAN. The largest part of the bulb work is to be carried on at Bellingham, Wash.?

Dr. TAYLOR. Yes, at Bellingham. Some work is needed also somewhere in the Middle Atlantic region.

The CHAIRMAN. Some are grown in California and some in Washington?

Dr. TAYLOR. A little in California.

The CHAIRMAN. Have you farms there?

Dr. TAYLOR. No. In California we are cooperating merely with growers who are experimenting on their own account.

The CHAIRMAN. What are you doing at Bellingham?

Dr. TAYLOR. At Bellingham we have a piece of land, a plant-introduction garden, which we are asking you to authorize the Government to accept as a gift in order to get the title.

The CHAIRMAN. That has never been accepted. The matter was brought up two or three years ago. You have no authority to accept it?

Dr. TAYLOR. No, sir.

Mr. ANDERSON. When it was brought up before, as I recall it, there was some sort of a string attached to it.

Dr. TAYLOR. You were of the opinion, Mr. Anderson, that we could not accept it legally. I was of the opinion that we could, and I based that upon a ruling of a former Attorney General under which we had operated for a number of years; we put it up again to the Department of Justice, and they supported you and turned us down.

Mr. ANDERSON. I knew there was something about it that stuck in my mind, but just what it was I could not remember, but my impression was that there was some condition attached to it at the time.

Mr. CANDLER. They state now that the department is assured that they will give the land to them without any strings.

Dr. TAYLOR. The whole question of titles is being worked out now.

Mr. CANDLER. At Bellingham you have 60 acres?

Dr. TAYLOR. Yes, sir. We will reach that in a few moments in the plant-introducing paragraph.

Item 105, page 99, is a new item.

The CHAIRMAN. That is for "investigating methods of propagating fruit trees, ornamental and other plants, the study of stocks used in propagating such plants, methods of growing stocks," etc.

Dr. TAYLOR. The special point of this is the development in this country of a home supply of those nursery stocks, both fruit and ornamental, which we have heretofore imported from Europe very largely, such imports have been a continual source of introduction of disease, which it has been found necessary to quarantine against to a considerable extent, so that the country as it stands is at the parting of the ways. Either we must produce our own nursery stock or go without, or relax our care with respect to these diseases. We believe this is the practical way.

Mr. CANDLER. Under present restrictions, they do not like to ship the material over here and then have it sent back?

Dr. TAYLOR. Certain things they can not ship, certain things that are considered dangerous; certain others can be imported under restrictions, which is awkward and disagreeable for them to meet in many instances, but we are convinced that we can produce the apple, pear, plum, and cherry seedlings that we are importing by the millions from Europe and that we can produce the stocks upon which our nursery industry rests generally. The nursery industry of the country appealed to the department to undertake this work, and we have given it thorough consideration and believe it should be done.

Mr. ANDERSON. It is almost absolutely necessary that it should be done if you are to maintain your present restrictions, is it not?

Dr. TAYLOR. I think so; and the restrictions, as they stand, are conservative and necessary. The appropriations like those for citrus canker and blister rust, which you gentlemen have had to make, are the result of unrestricted importation of that class of material.

Mr. CANDLER. So, really, the prosperity of our nursery stock in the future depends absolutely on something of that kind being done, then?

Dr. TAYLOR. Yes, sir.

Mr. LEE. It ought to be done anyway.

Mr. CANDLER. We ought to produce our own trees and not have to haul them clear across the waters.

Mr. ANDERSON. May I ask you, Dr. Taylor, how extensively are nursery stocks of this sort now propagated in private nurseries in this country?

Dr. TAYLOR. Considerable quantities of apple seedlings are grown, chiefly in Kansas, mainly from imported seeds. Very small quantities of pear seedlings are grown, practically entirely from imported seed. Some Mazzard and Mahalet cherry seedlings are grown, but by far the larger part of the quantity required by our nurserymen is imported in the form of seedling stocks.

Mr. ANDERSON. Is it not profitable to nurserymen to grow these stocks, or whatever you call them, or have they not the requisite knowledge or the information about them?

Dr. TAYLOR. No one yet knows just how to do it with certainty. In some years an excellent quality of apple seedlings results in others an inferior quality. The industry has been a comparatively closed one in western Europe for the rest of the world, and we think the time has come to change that situation.

Mr. ANDERSON. I am just wondering whether it was a matter of being commercially unprofitable or simply a matter of lack of information and experience.

Dr. TAYLOR. In the past there has not been so much incentive because the stocks have come in at low prices. The present prices are up to eight to ten times the prewar normal, and the disorganization of the industry in Europe by the war is such that it can not be expected to get back to prewar normal in Europe for a number of years.

The CHAIRMAN. When they return to normal conditions, then what?

Dr. TAYLOR. We believe we can grow these as well and as cheaply here as they can.

The CHAIRMAN. The nurserymen claim that they could be bought for less than they could be produced.

Dr. TAYLOR. That was true in the prewar time.

Mr. RUBEX. We have in Missouri a fruit experimental station located in my district. I do not know just the character of the work there, how much and how good work it is. Then we have a number of large nurseries in Missouri, and I know that they have developed some splendid apples. You take the Stark's Delicious that you can buy down here on the street. It is the best apple you can buy in Washington.

Mr. LEE. Two for a quarter.

Mr. RUBEX. Ten cents apiece and in some instances two for a quarter. I know they are doing a whole lot of good work in this investigation in Missouri.

Dr. TAYLOR. Our nurserymen are growing fine fruit trees, but they are growing them on stocks that were sprouted in France.

Mr. RUBEY. This Stark's Delicious was budded up and the apple produced out in Missouri.

Dr. TAYLOR. The original tree was from Iowa, but Stark got hold of it and proved it up and disseminated it in a very effective way, and it has become an important commercial variety.

Mr. RUBEY. It is so good that I want to hold it for Missouri if I can, you know.

Dr. TAYLOR. It has succeeded.

The CHAIRMAN. I have a communication from Congressman Gould of New York, relating to this item, which, without objection, will be inserted in the record. The committee has granted Mr. Gould a hearing on his bill—or in connection with this item—at a later date. There are a number of other communications on this item which are before the committee for its consideration.

(The letter referred to follows:)

HOUSE OF REPRESENTATIVES,
Washington, D. C., December 12, 1919.

HON. GILBERT N. HAUGEN,
Committee on Agriculture, House of Representatives,
Washington, D. C.

MY DEAR MR. HAUGEN: Referring to your letter of December 4, in re H. R. 5939, introduced by me providing for the experimenting of nursery stock, I would respectfully call to your attention the item which appears on page 241 of the annual Book of Estimates for the fiscal year ending June 30, 1921 (H. Doc. No. 411, 2d sess, 66th Cong.), under the heading Bureau of Plant Industry, Department of Agriculture, reading as follows:

"For investigating methods of propagating fruit trees, ornamental and other plants, the study of stocks used in propagating such plants, methods of growing stocks, the establishment and maintenance of mother orchards or plantations for the purpose of providing American sources of stocks, cuttings, or other propagating materials, \$30,000."

This item is for carrying out the same provisions as are included in H. R. 5939, and, as this matter is of vital importance to the country, and especially those interested in the nursery business, I hope that the Committee on Agriculture can see its way clear to adopting the recommendation of the department.

Yours, very truly,

N. J. GOULD.

(Statements made on this item on January 7 and 8 are inserted at this point.)

The CHAIRMAN. We will be pleased to hear you in reference to item No. 105, Mr. Watson.

STATEMENT OF MR. JOHN WATSON, OF PRINCETON, N. J., SECRETARY OF THE AMERICAN ASSOCIATION OF NURSEYMEN.

Mr. WATSON. Mr. Chairman, I am secretary of the same association of which Mr. Moon is president, the American Association of Nurserymen, and I want to say just a few words to you about paragraph 105, on page 99. That relates to an appropriation of \$30,000 for investigating fruit-tree seedlings and ornamental stocks, with a view to seeing whether we can produce in this country, in sufficient quantity, a suitable quality of things for which we have heretofore depended on Europe and other parts of the world.

If I take up your time telling you about things with which you are already familiar, I will be glad if you will just interrupt me; but

the nursery business secures its raw material, as you may know, from different parts of the world. For example, the greater part of the fruit-tree seedlings have always been imported from France. And when I say they come from France, I do not wish you to understand that they come from all parts of France. There are very limited areas in France which grow particularly good seedlings. Those areas are almost all located in the Loire River Valley, and especially around Angers and Orleans, and they have stocks that have peculiarities of their own in the quality of those fruit-tree seedlings. For example, Ussy grows some very good Mahaleb' cherry seedlings, but the very best apple and pear seedlings grown in the world come from Angers and from a very limited area around there. The same is true of ornamental stocks. For example, our azaleas, formerly imported from Belgium, came from near Ghent and they were grown there in very small areas at Mierelbeke and Loochrity, just east and southeast of Ghent. It seems that every plant finds, in some part of the world, the peculiarly favorable conditions that make it grow better there than anywhere else.

Now, effective in June of last year, Order No. 37, to which Mr. Moon has referred, was put into effect. That was made necessary on account of the insects and pests and plant diseases which we had acquired along with imported plant material and in other ways from abroad. That quarantine was limited to the ornamentals. Practically all of the ornamentals were excluded, but fruit-tree seedlings are still permitted entry. Unfortunately, that does not help us very much. It is true that just now the supplies of fruit-tree seedlings in France are very limited, due to the war conditions. At the same time we nurserymen in this country, who are perfectly willing to buy those fruit-tree seedlings, find ourselves up against this very practical difficulty: That the foreign nurserymen tell us since we will not permit them to sell us ornamentals, they will not permit us to buy their fruit-tree seedlings, which they know we need far more than we need ornamental stocks.

That statement has been challenged, but the facts remain as they are. Last September there was an international horticultural trade conference held in Paris, where the French, Belgians, English, and the Hollanders met, and, among other things, they considered this prohibition order of ours shutting out their ornamentals but permitting them to ship fruit-tree seedlings. While no formal action, as far as we nurserymen can hear, was taken at that conference, and while it was not referred to in the published reports except in a very general way, still we feel the effect of something—not because all of the French and English nurserymen are in a combination that they refuse us their fruit-tree seedlings (I could not say that, because it is not within my knowledge)—but it is within my knowledge that some of the French nurserymen have, at least in writing to their customers here, refused to sell fruit-tree seedlings which we know they have, and we also know the nurserymen in England, New Zealand, and Australia have been able to buy the seedlings they have, and what we can not buy.

Now, we have grown a good many fruit-tree seedlings in this country, particularly in Kansas, in the Kaw Valley, near Topeka; particularly at Silver Lake and Rossville. Following the same rules that

apply in France, these areas are very limited. And while we have grown a good many apple seedlings, I think any practical nurseryman, especially in this part of the country, or outside of the extreme south and the extreme west, will say they can not compare in quality with the apple seedlings we have imported from France in the past. The French apple seedlings and French pear seedlings give better results in the nursery, and orchardists of age and long experience say they produce more productive and longer-lived trees in the orchard.

Now we have this difficulty with regard to our apple seedlings, that while it is possible we may, with fairly satisfactory results, get along with the same quality of seedlings that we have grown in this country in the past, yet we are dependent, as this paragraph says, on foreign countries for pear seedlings. We grow some pear seedlings in this country. They are all Japanese pear seedlings. They are suitable only for a certain class of pear trees, such as the Keiffer, Garber, and other hybrids, but are not suitable for budding with the Bartlett, Seckel, Clapp's Favorite, and the class we call French pears.

And while we grow apple seedlings in this country, yet we have to import the apple seed. There is some seed gathered in Vermont from the cider mills there, but it is not satisfactory; it does not give satisfactory results. We have imported the French crab-apple seed; and the cherry and plum seeds we have largely imported from France, and they have come from northern Italy and parts of the former Austrian Empire. Our seedling supply, then, is dependent on foreign seeds, and foreign seeds are subject to control of the same people who have been and are able now on the other side to control the seedling market. So it is necessary for us to grow our own seedlings in this country, and it is necessary also for us to grow mother orchards to supply the fruit from which we will get the seeds.

This is a small amount, and you may ask, "Well, why don't the nurserymen, with this market, in which they have now a monopoly—why don't they grow these seedlings themselves, without asking for Federal aid?" But it is a business that is highly technical. The expense is very great, the returns are uncertain, and it is not a safe thing to depend upon nor reasonable to ask the nurserymen to do. In almost anything else, if there is a great demand for something, a manufacturer may get out and invent something, and he makes it and sells it; but there are no such things as patents or protected trade-marks in the nursery business. The nurseryman might succeed after many years in producing some new strains of seedlings that would be very good and would be very profitable, but he could not get anything like an adequate return on his investment, and it seems very natural, it is something for which the nursery trade has to depend on the department. It is true our association represents only 400 nurserymen, but it represents a majority of the acreage and a majority of the turnover in the industry, and, as far as this item is concerned, what it purposes doing is not so much in the interest of the nursery business—because as far as that is concerned we can grow something else; we can grow coleus, geraniums, and tomato plants—but it is the future of American orchards; it is an item of food and a healthful food. It is of far more interest to the orchard-

ists of the country and to the consumers of fruit than it is to the nurserymen.

Now, that is a short general statement of what I consider the situation and the need for this, and I shall be very glad to answer any questions you have to ask me.

The CHAIRMAN. You are asking for \$30,000 for this work?

Mr. HARRISON. Yes, sir.

Mr. McLAUGHLIN of Michigan. You have told of the need and desirability of it. Can you give us some idea of how you think it would be carried on?

Mr. WATSON. I think the representatives of the Department of Agriculture can answer that better than I can. The item makes it available to the Department of Agriculture. The department, in a very small way, some years ago began experiments. Dr. Taylor, for example, has some very interesting pear seedlings that appear to be entirely different from anything we have seen before.

Mr. JONES. Has this request been made before, within your knowledge?

Mr. WATSON. No; it never has, because the importance of it has never been so urgent or immediate before.

Mr. McLAUGHLIN of Michigan. This item provides:

For investigating methods of propagating fruit trees, ornamental and other plants, the study of stock used in propagating such plants, methods of growing stocks, the establishment and maintenance of mother orchards or plantations for the purpose of providing American sources of stocks.

And so forth. Do you understand that it would be, or the course that would naturally be followed would be, that the department would acquire land for a lot of orchards throughout the country, in different climates and having different characters of soil, etc., to carry on these experiments?

Mr. WATSON. Not extensively, with the idea of producing seedlings or stocks in great quantity. Certainly not orchards for producing the fruit; but sufficient to carry out these tests to produce a stock from which a start can be made in growing stocks, say, apple stocks, from layers or orchards of seedlings to produce seeds.

Mr. McLAUGHLIN of Michigan. Are you right about that? This says for the establishment and maintenance of mother orchards or plantations for the purpose of providing American sources of stock. Now, it is not an experiment; it is not for the purpose of trying out these things and establishing the facts; it is for the purpose of supplying and providing the American sources of stock.

Mr. HARRISON. Would you rather have Dr. Taylor or Prof. Corbett, who will direct the work, tell you just what they propose to do and what the item means? They are here.

Mr. McLAUGHLIN of Michigan. I expect this gentleman can tell me what they expect to be done.

Mr. JONES. He does not represent the Government.

Mr. McLAUGHLIN of Michigan. I do not care who does it.

Mr. RUBEX. What are the States doing in their fruit experimental stations along these lines? We have in a number of States fruit experiment stations. I have one in my State, in my district. They have over 100 acres. And it has occurred to me that they ought to be doing this kind of work.

Mr. WATSON. I can not speak of that.

Mr. RUBEY. Probably Dr. Taylor can tell us, or some member of the department. I thought you might know.

Mr. WATSON. The States have been largely interested in varieties of fruits. We have been so sure of a continuance of these foreign sources of supply of seedlings that to date very little has been done in the way of producing seedlings over here; but I am sure all that has been done has been done in the department here in Washington and very largely under Dr. Taylor's direction, and particularly with regard to these pear seedlings that I mentioned.

The CHAIRMAN. Thank you, Mr. Watson. We will hear Dr. Taylor in reference to this item, now.

FURTHER STATEMENT OF DR. WILLIAM A. TAYLOR, CHIEF OF THE BUREAU OF PLANT INDUSTRY, DEPARTMENT OF AGRICULTURE.

Dr. TAYLOR. Mr. Chairman, you may recall there was a brief discussion of this item at the Bureau of Plant Industry hearing, and at the risk of repeating some of the matter already in the transcript there I will say specifically, in response to Mr. McLaughlin's question, that this need probably will arise, namely, that of assisting nurserymen and fruit growers in establishing orchards for the production of seeds, as distinguished from fruit for eating—seed suitable for the production of these stocks. For some of these orchards it is contemplated suitable conditions will be found in areas of unforested land in certain of the eastern forest reservations; for example, where plots can be established to produce steady supplies of seeds suitable for the production of these stocks. That is merely one incident in the mother-orchard feature.

I may say at the present time one almost untested Oriental pear species, which is promising as a stock, is being established in orchard form by a New York nursery, with a view to producing a supply of seed for the use of that nursery in the growing of pear stock of the Oriental types.

Now, this whole question, while the acute exigency is a joint result of the war and the quarantine which has been described by Mr. Watson, is considerably broader in its ultimate effect on the American orchard industry than has been indicated. As a matter of fact, we do not know as pomologists, as fruit growers, any more than the nurserymen do, that we have in use the stocks which are best adapted to the important orchard districts in this country. We are growing orchards under a tremendously wide range of soil and climatic conditions. We do know these French apple seedling stocks are not safe for the extreme north and portions of the Great Plains. We do know that in Minnesota and in the Dakotas it is necessary to get a hardier apple stock, because the trees kill out in a hard winter, perhaps after they have stood and grown thriftily for 8, 10, or 15 years. We do know in the case of the pear there are differences of congeniality between the standard fruiting varieties like the Bartlett, Seckel, and other high-quality standard sorts, and the European and Oriental types of seedlings which so far are in use in the nurseries.

The item proposes an experimental attack upon the fundamentals of this question of the adaptability of these stocks, with resulting

constructive assistance to the nursery and orchard industry in the production of home-grown stocks for the future. Part of the exigency to which Mr. Watson has referred, with respect to the sources of supply of seed and of stocks from the European continent, at present is due to a very light crop of fruit in the cider apple and pear orchards of western Europe in 1917.

While investigating the agricultural conditions there in September of 1917, we found hardly a hatful of fruit on the trees of those orchards which are relied on to produce the bulk of the seed for growing these seedlings. A year of shortage like that is as likely to occur during a time of peace as it is during a time of war, and our industry ought not to be subjected to a foreign-crop failure of that kind in the future. It will pinch our fruit growers this year, because there is no way of procuring substitutes for these that are satisfactory or of replacing that seed and those stocks immediately. But the proposal is, gentlemen, that we protect our country in so far as the risk of the introduction of these destructive and expensive tree and plant diseases are concerned, like the chestnut blight, the white-pine blister rust, and the citrus canker, all of which have come in on nursery stock at one time or another and on which we have spent hundreds of thousands of dollars in combating, and to now protect our country against the possibility of such introductions in the future, not merely by excluding the nursery stock which has brought them heretofore, but by assisting our nurserymen and fruit growers in developing a home supply, so it will not be necessary to take any unreasonable chances of the introduction of such diseases. I believe it can be done.

Mr. McLAUGHLIN of Michigan. I asked a question about the meaning of this section 105. It is one thing to cooperate with the nurserymen and to make investigations; it is another thing to establish and maintain mother orchards for the purpose of providing American sources of stock. That may be a permanent proposition involving the purchase of land, the planting of orchards, and the caring for them and carrying on all the business in connection with the producing of the seeds, cuttings, etc.

Dr. TAYLOR. I would say that what is in the mind of the department with regard to the work to be done under this language, Mr. McLaughlin, does not involve the purchase of land or the establishing of orchards other than possibly small orchards on Government-owned lands, such as in the eastern forest reserves, where there may be land suitable and merely requiring the planting under favorable fruiting conditions; because the thing which will be essential in this provision of seed will be regularity of production, and no purchase of land or the establishing of Government-owned orchards, other than might be incidental to the plant production gardens already established or suitable places that could be found on the forest reserves, is contemplated.

Mr. ANDERSON. It strikes me that one of the things to be avoided here is the establishment of a sort of governmental agency on which everybody is going to depend for certain fundamental seed stocks. If the Government is going to undertake this proposition and gives everybody to understand it is going to do it, we very soon will find ourselves in the position of a worse shortage than we have now.

Dr. TAYLOR. That is not at all in the mind of the department workers who have the matter in hand. What probably will result will be this: As in the case I have already cited, as soon as a variety or strain is demonstrated to be suitable, to fit the climatic and soil requirements of an important orchard region, speaking of fruit-tree stocks, commercial concerns will take hold and provide their own supply in order to have it just as this New York concern is now doing with this recently introduced oriental pear stock. It would, I think, be entirely out of the question (so far as my personal opinion is concerned, it would be inadvisable) for the Government to undertake to provide these supplies required by the nurserymen; and I do not think the nurserymen would welcome that, knowing what their competitive feeling is with respect to each other.

Mr. McLAUGHLIN of Michigan. It was inadvisable to draft the section as it is drafted, was it not, because it would permit that and directly call for it?

Dr. TAYLOR. It is possible this wording might be construed as we have not construed it, as a source of commercial supply, but that was not our intention.

Mr. McLAUGHLIN of Michigan. This says:

The establishment and maintenance of mother orchards or plantations for the purpose of providing American sources of stocks.

Dr. TAYLOR. As I have stated, what we had in mind there was these small nuclei of production.

Mr. TINCHER. Doctor, as I understand you, with this \$30,000 appropriated, there would be six new officers created as enumerated at the bottom of page 99.

Dr. TAYLOR. The estimate is that there will be six people required.

Mr. TINCHER. That will be six new men going to work for the Government.

Dr. TAYLOR. Yes, sir.

Mr. TINCHER. Then the size of this appropriation for next year would depend upon the efficiency of these men, and like any Government investigating branch that would probably grow according to their efficiency in their lines; is that right?

Dr. TAYLOR. Subject to determination by Congress.

Mr. TINCHER. And we may reasonably expect if the propagators are up to snuff that by 1925 we will be called upon for \$500,000 on this item if history repeats itself with reference to other items in this department.

Dr. TAYLOR. Certainly not, unless the results of the work shall so convince you gentlemen that you feel compelled to appropriate that amount of money for it.

Mr. ANDERSON. This is spoken of as an emergency proposition, yet I predict that it is not the meaning of the department that it is an emergency proposition in the sense of being temporary.

Dr. TAYLOR. No, sir. The emergency feature of this is the parting of the ways which we face, as Mr. Watson has indicated, with respect to our supplies of propagating stocks.

Mr. ANDERSON. It would be in contemplation by the department, I take it, that if the amount which is now suggested is going to be anything like adequate when the proposition is developed, I assume that you are going to proceed rather slowly. You will be-

gin, probably, only investigational lines. You will not need very many men on that?

Dr. TAYLOR. Yes, sir.

Mr. ANDERSON. But if you ever take up this proposition of establishing those nuclei, as you call them, the proposition is going to be very much, very much larger than it is indicated by the amount now?

Dr. TAYLOR. Not necessarily, I think, Mr. Anderson. It would not be in our minds that that would be true. I do not understand that the nursery trade would be inclined to leave to the Government the production and, therefore, the control of these essential materials after the way is blazed out so that they know how to proceed.

Mr. ANDERSON. I think the committee are really entitled to a fairly reasonable prospect of what it is going to be expected to do in the future in a new item of this sort. I do not think it is quite fair to the committee to start out with an appropriation of \$30,000 if it is reasonably contemplated that that item is going to be very much enlarged without telling us so.

Dr. TAYLOR. I do not think it is. I have no reason to expect that this item would develop commercial features or develop a large expenditure any more than the fairly comparable items in the Bureau of Plant Industry with respect to lines of crop work, except in cases where control of epidemics has become necessary.

Mr. ANDERSON. You are going to establish a number of orchards. In our experience that means buildings for the equipment, buildings for the animals, buildings for the employees, buildings for the superintendent, and everything of that sort. That has been the history of the establishment of these things from the very beginning. If that is what is going to be done in the future, we want to know it. So far as I am concerned, if I thought this was a good proposition, I would not be deterred by the amount of money necessary to do it. I want to know in advance, if I may, what we are going to be expected to do if we start this thing.

Dr. TAYLOR. Possibly the reference to orchards has given it an aspect of magnitude which is undue. Such orchards or plantations would consist merely of trees planted and given the ordinary cultural treatment, including harvesting the crop and not requiring continuous experimentation, such as we do find necessary in plot work. That work would be done, part of it, at Arlington Farm, part of it at the garden at Chico, Calif., already established and already equipped with buildings under conditions suitable.

Mr. ANDERSON. I understand that part of it.

Dr. TAYLOR. We do not contemplate the establishing of separate stations involving the erection of buildings or the purchase of land in connection with this work.

Mr. ANDERSON. You do not contemplate it, but you ought to, if I have a correct view of the proposition in my own mind. As I understand, what you propose to do is after you have experimentally established the value of the stock you propose to go ahead and grow that in sufficient quantity, at least, and furnish it to a considerable number of the nurserymen over the country for propagation by them.

Dr. TAYLOR. Yes; to give them a start.

Mr. ANDERSON. That is not a very small undertaking, considering the magnitude of the industry and variety of conditions under which this stuff must be grown. Consequently, I take it that these orchards which you are going to establish out in the various reserves somewhere will not be so small but that they will have to have men working out there, and our experience has been when you put men out in the forest reserves they can not live in tents. They have to be housed and everything of that sort. I do not believe you could properly start a proposition of this kind and carry it out with any such appropriation as you propose here in the beginning of it, that you will get anywhere on the major plan.

Dr. TAYLOR. It is our judgment that we can.

Mr. ANDERSON. Your judgment is probably better than mine.

Dr. TAYLOR. It is our expectation that we will if this appropriation is available.

Mr. ANDERSON. I am willing to say this much, that I think your bureau gets about as much done with its little money as any of them.

Dr. TAYLOR. Thank you, sir. We endeavor to get full value for every cent that we spend on the public work.

Mr. McLAUGHLIN of Nebraska. I am like Mr. Anderson, Dr. Taylor; I hesitate to even make a suggestion to you as to how you should carry on your work, but it occurred to me that if you take these forest areas and cultivate them and grow these trees and different kinds of stock and those places may be found suitable localities for growing it, unless the Government goes into those places on a large scale, it will be necessary for the private interests to acquire similar lands and to do their work under similar conditions. Why would it not be better to cooperate with the nurseries already established and to assist and advise them in this kind of work where their plants are located and their locations may be found suitable under such methods as you would find proper and then they could do their own work on their own plants, and not be dependent upon the Government nor would it be necessary for them to acquire great areas away off in that far western country to carry on their work.

Dr. TAYLOR. That goes without saying in our minds. Mr. McLaughlin, that there will be cooperation, as there is now, with every feature that we have under way that touches this problem at all. We must probably face this situation, that many of the nurseries are located in territory which is not good fruit-growing territory. It is excellent propagating territory but not good orchard territory, so that in so far as seed supply is concerned any plan for the future must rest on certainty of annual production of crops of seed. That is one incident in this. Just as soon, for example, as a stock in our tests develops promise, our idea is to place that with the nurserymen for commercial test and just as quickly as it is demonstrated that it is commercially practicable turn it loose, and we feel that they will take care of it. We do not anticipate that this is going to develop any great paternalistic activity which will do things for the nurserymen which they properly should do for themselves, but that it shall, in the interests of the fruit industry and of the general public in its use of ornamentals point the way which the commercial interests can safely follow.

Mr. McLAUGHLIN of Michigan. Suppose it is developed in these areas that you select that the work can be profitably carried on. The

nurserymen, however, each one having his own plant, would not acquire property out there and go into business out there until he was satisfied that his own location was unsuitable. He would want to have it determined that his own property was not suitable before he would give up his location or acquire property elsewhere for that purpose. Is that true?

Dr. TAYLOR. In general, he knows whether apples, for example, are a regular crop where his nursery is. Many of the best nurseries are located where apples do not bear regularly because of untimely spring frosts, yet the growing season conditions and soil are admirably suited to the growth of nursery stock. Of course, it is a very complicated question—one of the most complicated in plant production—because it involves very intensive horticultural activity and involves heavy expenditures per acre of land.

Mr. JONES. This is a new item.

Dr. TAYLOR. Yes, sir.

Mr. JONES. Has the department ever made request for this before?

Dr. TAYLOR. No, sir.

Mr. JONES. What condition has arisen that justifies it at this particular time under stress of these times when no new appropriations are to be made?

Dr. TAYLOR. A realization of this fact, that so long as we rely upon the bringing in of nursery material from foreign countries we risk the bringing in of destructive plant diseases.

Mr. JONES. But you brought them in last year, did you not?

Dr. TAYLOR. No, sir. Diseases have come in in the past that we are now fighting. Congress authorized quarantines against such stock as is likely to bring disease.

Mr. JONES. Yes; I appreciate that.

Dr. TAYLOR. On which the quarantine was laid and is in effect.

Mr. JONES. Is there any other appropriation so these things would be taken care of?

Dr. TAYLOR. No, sir; not under the investigational items having to do with this feature. It is a new item; it is a constructive forward-looking item brought forward now because we face this particular emergency and we feel it should be dealt with squarely and effectively.

Mr. RUBEN. Are the State experimental stations doing anything along this line?

Dr. TAYLOR. The State of California is doing some work on stocks for citrus fruits which they have in recent years found to be a very important thing that has been neglected. No other State, so far as I know, is at work upon it.

Mr. RUBEN. Is it not possible for the States to make these experimental stations and do this work?

Dr. TAYLOR. Of course, quite a little of this can be done in co-operation with those stations, but no State has a sufficient nursery investment or a sufficient degree of control to encourage it to go forward. That seems to be the reason.

Mr. RUBEN. Do you know how many fruit experimental stations are maintained by the respective States?

Dr. TAYLOR. Distinctly as fruit experimental stations, I think only Missouri and California, though several of the States have substations for work upon fruit along with other things in which fruit work is incidental.

The CHAIRMAN. Are there any other questions? Doctor, we are very much obliged to you.

THURSDAY, JANUARY 8, 1920.

The CHAIRMAN. We have with us this morning Congressman Gould, who desires to address the committee on H. R. 5939, introduced by him, which is similar to item 105, which we have considered. We will be glad to hear from you, Mr. Gould.

**STATEMENT OF HON. N. J. GOULD, A REPRESENTATIVE IN
CONGRESS FROM THE STATE OF NEW YORK.**

Mr. GOULD. Mr. Chairman and members of the committee, I want to take a few minutes of your time in connection with the item on page 241 of the annual Book of Estimates, \$30,000, which covers a request for an appropriation along the lines of a bill which I introduced recently, H. R. 5939.

I would like to file with the committee a letter from the Secretary of Agriculture in regard to the need for the appropriation, which would enable the department to start the work of propagating seeds, and it would seem as if it would be probably better if the committee does not decide to include the item in the appropriation bill, but might rather be inclined to give consideration to the bill itself, to change the title to read as follows:

To provide for the investigation of stocks for use in propagating fruit, nut, and ornamental trees and other plants, and the development of methods of producing and handling such stocks.

With the permission of the chairman, I would like to file with the committee and put in the record this letter from the Secretary of Agriculture.

The CHAIRMAN. Without objection, it will be so ordered.
(The letter referred to follows:)

DEPARTMENT OF AGRICULTURE,
Washington, August 2, 1919.

HON. NORMAN J. GOULD,
House of Representatives.

DEAR MR. GOULD: In accordance with your request, the department has given very careful consideration to the bill H. R. 5939, providing for experimental investigations relating to the stocks upon which to propagate fruit, nut, and ornamental trees, and other plants.

The importance to the nursery and fruit industries of this country of the investigations proposed by the bill can hardly be overestimated. The foundation of our apple, pear, peach, plum, cherry, citrus, and other fruit industries is the stocks on which the trees are budded or grafted. These stocks are, in large part, seedlings grown from seeds obtained from various sources. In case of the apple, pear, cherry, and in part the plum, the sources of seed supply are almost entirely in foreign countries, particularly those of continental Europe and the Orient. While stocks of all these kinds are grown to some extent in this country, they are produced largely from imported seeds, there being no suitable and adequate sources of supply of such seeds in the United States. Furthermore, large quantities of seedling stocks, in addition to those

grown in this country from imported seeds, are imported. More than 20,000,000 apple stocks alone, as well as many other kinds, were imported in 1916 before the trade was seriously interrupted by war conditions. In the case of citrus stocks, peaches, some plums, and other kinds, there are domestic sources of seeds which are fairly adequate to our present needs.

In view of the danger of a failure of supply through interference with production in foreign countries, such as recently has been experienced, the necessity of developing domestic sources has become very clearly apparent during the past two years.

Still more important at the present time is the determination, through experimentation and study, of the kinds of stocks best adapted to the different climatic, soil, and other environmental conditions in which our tree fruits are being planted. While such fruits as the apple, peach, pear, plum, and cherry are grown under widely varying conditions, and require very careful selection of varieties for fruiting, our nurserymen, with comparatively few exceptions, are propagating these trees on single kinds of stocks, because these can be secured, without reference to their actual adaptability to different parts of the country. This situation with respect to the durability of our orchards is due to the lack of available information regarding the stock requirements of the different regions.

In the case of the apple, the fact that the French crab stock is well adapted to European conditions, and fairly so to the soil and climatic conditions found in our Northeastern States, is not at all indicative that it is the best stock for propagating apple trees to be planted in the mountain regions of North Carolina and Georgia, in the Middle West, in the Great Plains, or on the Pacific coast. In fact, there is very strong indication that no single apple stock is suitable for planting throughout our important apple districts. As such orchards, when planted, are intended to endure for from 25 to 100 years or more, the question of the suitability of the stock is one of great importance to the farmer and to the commercial fruit grower. What is true of the apple is, to a considerable extent, true of most of the other tree fruits.

The necessity of restricting, under the Federal plant quarantine act, the importation of much of the nursery stock and other closely allied plant material brought into the United States in large quantities, in order to prevent the introduction of additional dangerous insect pests and fungous diseases which would be destructive to our orchard, forestry, and ornamental tree interests, gives added emphasis to this matter at the present time.

It is not to be presumed that, in the widely varied conditions both as to soil and climate obtaining in different parts of the country, there are not places where it will be possible to grow stocks having all the desirable qualities, from the standpoint of the nurseryman and the orchardist, of the stocks now imported. The determination of proper methods of culture and of handling the stocks may contribute as much to their quality and value as the conditions of the region in which they are grown. The problem involves, therefore, not only the determination of the regions where suitable conditions exist but also the development of methods of producing and handling stocks.

Some of the more conspicuous features of the fruit-tree stock problem may be summarized as follows:

1. To determine, through investigation, the best kinds of stocks for the different fruits when planted under different climatic, soil, and other conditions.
2. To determine the conditions, soil, climatic and other, best suited to the growing of such stocks.
3. To determine the best methods of growing and handling these stocks under American conditions.
4. To encourage the establishment and maintenance of mother orchards to serve as sources of domestic supply of fruit-tree stock seeds of the different kinds.

These problems are Nation-wide in their scope and do not admit of solution by individual nurserymen or fruit growers, nor can the individual States, working independently, accomplish the ends in view.

If this department is authorized to undertake such investigations as are outlined in H. R. 5939, it could undoubtedly, through its existing forces in the Bureau of Plant Industry, working in cooperation with the State experiment stations and individual farmers, fruit growers, and nurserymen, make rapid progress in the direction of safeguarding the stability of our orchard industry. The magnitude of the industry is, to some extent, indicated by the fact that the estimated value of the 1918 crops of apples, peaches, pears, and citrus fruits of

the United States was approximately \$280,000,000, not taking into account the value of the plum, prune, cherry, and other fruits. The conditions affecting the ornamental tree and plant industry are very similar to those of the fruit industry.

The sum of \$30,000 named in the bill would, if appropriated, make it possible for the department to undertake these lines of work, to which at present it can give only incidental attention.

It is suggested that the title of the bill would be more clearly indicative of its purpose if it were changed to read substantially as follows:

"To provide for the investigation of stocks for use in propagating fruit, nut, and ornamental trees and other plants, and the development of methods of producing and handling such stocks."

Very truly, yours,

D. F. HOUSTON. *Secretary.*

Mr. GOULD. In general, and to be brief, I might say that throughout the central part of New York State, as you gentlemen undoubtedly know, and in many other parts of the country, there are many concerns engaged in the raising of nursery stock. It developed during the war that our stock of seeds was very much depleted; and also the fact developed that a great percentage is imported from France and Belgium. For that reason we were tied up, and to-day the condition of the industry and of those who may want to plant and raise nursery stocks for sale to those who may wish to have the privilege of raising fruit, is very much restricted.

On consultation with the Department of Agriculture I found that in all probability it would not be a great undertaking, nor exceedingly expensive, if by use of some part of the forest reserve or other Government-owned land in various parts of the country, we might have a small appropriation to institute the work of finding what types of seed, and hardy fruit trees, would be best suited for various parts of our country, and in that way help in the production of fruit.

For that reason I introduced the bill, as I have stated, and also have prepared for the committee a partial list of men in various parts of the country, some of whom I have seen, and from all of whom I have letters on file; and I do not think it is quite necessary to cumber the records with all the correspondence I have, but I can say that these letters are all along the same lines, and advocate the benefit which would accrue to the nursery industry and to the fruit growers of the country if this work might be started.

The CHAIRMAN. Who are they; nursery men, or farmers?

Mr. GOULD. I suppose probably 80 per cent are nurserymen. Some are farmers. No, they are not 80 per cent of them nurserymen. I should imagine about half of them are nurserymen, and the balance are farmers who are engaged in raising fruits; and they cover in scope Illinois, Pennsylvania, Minnesota, West Virginia, Michigan, Maryland, Georgia, Iowa, Indiana, Oregon, California Tennessee, and Texas.

If the committee desires me to do so, I would be glad to read extracts from some of these letters, outlining the apparent need for the starting of this work. I have made one or two little notes here. I have here a letter, for instance, from Houston, Tex., from the Texas Nursery Co., in which they say as follows:

The importance of encouraging the development of that branch of horticulture which produces the best stocks for the different sections of our country is of incalculable value, greatly extending the production of one of the country's greatest needs not only in overcoming the high cost of living but in producing more abundantly the most wholesome and delicious articles of food.

I read from another letter (from Newark, N. Y.):

Unless we do get some help from the Agricultural Department very soon there is going to be a terrible dearth in the supply of a good many of the more staple kinds of nursery stock, both fruit and nut trees and ornamental trees and deciduous shrubs as well.

The rest of these letters, Mr. Chairman, are all practically along the same line. They support the contention which I make, that this country is to-day practically dependent upon the importation of seeds from abroad for fruit trees.

The CHAIRMAN. Can the growing of nursery stock from seed be made a success commercially in this country?

Mr. GOULD. I should think so.

The CHAIRMAN. To compete with other countries?

Mr. GOULD. I do not know.

The CHAIRMAN. We have never been able to compete with our foreign competitors before.

Mr. GOULD. As to that I am perfectly frank to say that I have not the personal knowledge; but I do know of many nursery concerns in my part of New York State which have been successful in their business, and from that I assume they can compete.

The CHAIRMAN. In growing nursery stock?

Mr. GOULD. Yes, sir. If the Chairman has no objection, I would like to file with the committee a few typical letters which I have here.

The CHAIRMAN. Any extracts which you have read from the letters will be included in the printed reports. Is there anything in addition to that?

Mr. GOULD. There are some parts that I did not give that might possibly be of interest to the committee.

The CHAIRMAN. The committee will be glad to have you file the letters with it. Thank you very much.

(A list of correspondents, together with extracts from certain letters submitted by Mr. Gould are here printed in the record, as follows:)

Swain Nelson, Glenview, Ill.
 J. Edward Moon, Morrisville, Pa.
 C. H. Perkins, Newark, N. Y.
 J. M. Pitkin, jr., Newark, N. Y.
 Wm. Pfaender, jr., Newulm, Minn.
 H. W. Miller, Paw Paw, W. Va.
 Chas. E. Greening, Monroe, Mich.
 Ralph T. Olcott, Rochester, N. Y.
 Theodore J. Smith, Geneva, N. Y.
 W. M. Scott, Hancock, Md.
 L. A. Berckmans, Augusta, Ga.
 W. M. Gould, Newark, N. Y.
 E. N. Sherman, Charles City, Iowa.
 J. L. Pelham, Leesburg, Va.
 W. C. Reed, Vincennes, Ind.
 W. M. Pitkin, Rochester, N. Y.
 Robt. Pyle, West Grove, Pa.
 Geo. T. Powell, Ghent, N. Y.
 J. B. Pilkington, Portiang, Oreg.
 C. S. Milliken, Los Angeles, Calif.
 Thos. A. McBeth, Springfield, Ohio.
 R. D. Underwood, Lake City, Minn.
 E. B. Drake, Winchester, Tenn.
 C. H. Andrews, Faribault, Minn.
 C. Sonderegger, Beatrice, Nebr.
 J. R. Barnes, Yalesville, Conn.

We are very glad, indeed, to know that such a bill is being presented, and sincerely hope that it will be passed. We take the position that since the Government will soon prohibit the importation of fruit-tree stocks, that it should stand the cost of experimenting and find some place where they can be grown as well as in France.

Without consulting them, which I have not yet had opportunity to do, I can not report the views of all the nurserymen who are members of this association, but I can not imagine any reason for any nurseryman opposing the bill. I can see very many reasons why every nurseryman should favor it. Order No. 37 of the Federal Horticultural Board prohibits the importation of the raw materials on which we have depended in the past, with the exception of fruit-tree seedlings and rose-stocks. The latter have been grown in this country for a good many years, but we have not been able to duplicate the favorable conditions of soil and climate which have enabled French growers to supply a quality that American nurserymen have been willing to import at prices higher than asked for American seedlings of the same kinds. If, as some nurserymen think, rose-stocks and fruit-tree seedlings will, after a time, be added to the list of things excluded, then it is of serious importance to the nursery and orchard interests of the country, that provisions be made for producing here raw materials of satisfactory quality. That undertaking will be necessarily largely experimental and expensive, and it is doubtful that it will be undertaken by private enterprises. It would seem to be no more than reasonable for the Government to undertake this work and to demonstrate ability to grow here the materials formerly imported and now excluded. I believe that the Federal Horticultural Board and the Bureau of Plant Industry will heartily support this bill.

* * * * *

Anyone familiar with all the circumstances and in touch with the situation will recognize the tremendous importance of this bill, not only to nurserymen but to the orchardists. During war years there were small supplies of seedlings grown in France, and importations were difficult and limited in quantity. We are just now beginning to feel the effect of that, when we have a marked shortage of fruit trees of all kinds and an enormous demand. Prices for all fruit trees are very high, but evidently there are very few to be had.

Even though there should be no further restrictions put upon importation, still the very fact that ornamentals are excluded, while fruit stocks can be imported, can not fail to have its effect upon the French growers, whose moderate supplies this season are going to their European allies instead of coming to this country. And while we grow seedlings, though not of the quality and value of those imported, yet we have to depend upon foreign countries for the seeds, and largely upon France. And it is significant to note that the crop of these is "not sufficient to spare any to American buyers." Only last month there was held in Paris an international horticultural conference, at which the American market was discussed, and while no formal action was taken to our disadvantage, we draw inevitable conclusions from the circumstances and facts known to us.

I shall be very glad of an opportunity to come to Washington at any time to talk with you about this bill and to give you any information that you may want.

FRIDAY, DECEMBER 12, 1919—AFTERNOON SESSION CONTINUED.

STATEMENT OF DR. WILLIAM A. TAYLOR, CHIEF OF THE BUREAU OF PLANT INDUSTRY, DEPARTMENT OF AGRICULTURE—Continued.

The CHAIRMAN. Dr. Taylor, will you tell us about item 106, "for continuing the necessary improvements to establish and maintain a general experimental farm and agricultural station on the Arlington estate?"

Dr. TAYLOR. That is the appropriation under which we maintain our Arlington experiment farm in Virginia, just across the river. We

are asking for an increase here of \$5,000 to meet increased costs of maintenance due actually chiefly to the shrinkage of the dollar.

The CHAIRMAN. What about the next item?

Dr. TAYLOR. In item 107, page 101, "for investigations in foreign seed and plant introduction," we are asking for a total actual increase of \$31,500. We are asking for certain new language, which is shown in italics, which, in brief, would authorize the Secretary of Agriculture to acquire by gift, devise, or by purchase for a sum not to exceed \$1 for each site the sites now occupied by field stations at Chico, Calif., 80 acres; at Bellingham, Wash., 60 acres; at Buena Vista, Fla., and Savannah, Ga., 25 acres and 46 acres, respectively. All of them now, with the exception of Savannah, have for many years been in use as field stations for this work.

Mr. ANDERSON. You say you can run this 130 acres in Chico without increase in appropriation. How much is it going to take if you add this 80 acres?

Dr. TAYLOR. That is all included in this. There is no increase at all of the acreage; it is merely transfer of title.

Mr. ANDERSON. You had authority to buy 130 acres in 1918?

Dr. TAYLOR. Yes, sir. Historically it came about in this way: The work was authorized to be undertaken and was undertaken on the basis of land purchased by a group of citizens at Chico, who deeded it in trust to the director of the California Experiment Station. He leased it to the Department of Agriculture for 99 years, I think it was, for such use as this. It would be quite a long story to detail it all. That is the substance of it. Then upon our recommendation Congress a number of years later authorized the purchase of 130 acres additional. That land was purchased, but it has not yet been improved to the extent that it should be for fully effective use; so that we actually have in use all of this land the title to which it is proposed to acquire.

Mr. ANDERSON. That is, the 80 acres that you are talking about is included in the 130 acres?

Dr. TAYLOR. No; we own 130 acres, and it is proposed to acquire by gift of one dollar compensation the 80 acres which we hold under a 99-year lease.

Mr. ANDERSON. That is the 99-year lease that I said you did not have the authority to make.

Dr. TAYLOR. I did not remember that your opinion extended to the lease. I thought we were discussing the question of title.

The CHAIRMAN. How long will it take you to complete your statement, Doctor?

Dr. TAYLOR. I think half an hour more, Mr. Chairman. These acquisitions of title do not involve an expenditure of more than \$4.

Mr. ANDERSON. You have actually got the land but you have not got the title; is that the idea?

Dr. TAYLOR. Yes.

Mr. ANDERSON. Are there any buildings owned by the Government on this land?

Dr. TAYLOR. Yes; at the Chico station, gardens, buildings, and equipment.

Mr. ANDERSON. What is the condition of title on these other places?

Dr. TAYLOR. In the case of Bellingham, the holding, I think, is under a 99-year lease. It is under a long-term lease. The site at

Buena Vista is under a deed of trust to the director of the Florida Experiment Station for lease to the department and is under a long lease; I think 99 years.

The Savannah station of 25 acres is, I think, under a 99-year lease. It is a long lease, the title being held by a trustee, to whom the donor deeded it in order that it might be available for our work.

Mr. ANDERSON. There is no limitation upon that deed of trust at all?

Dr. TAYLOR. In the case of the Bellingham deed of trust, my recollection is that it is for the purpose of a plant-introduction garden. I do not recall the exact wording.

In the case of Chico, my recollection is that there is no limitation. In the other two my recollection is that there is no limitation.

Mr. ANDERSON. So far as I am concerned, I would not vote, if I knew it, for any proposition for the Government to take over and operate land which was subject to conditions. I would not vote for such a proposition if I knew it. Of course, if I did not know it, I suppose it would not hurt me any. There is every legal reason and political reason why the Government should not take property that is subject to conditions. If we can not enter this property under conditions which make it possible to use that in any way in which we think it is proper to use it, we ought not to have it; and, as I said before, I will not willingly vote one nickel for any proposition which involves the Government's taking title to land which is not absolutely subject to its control for any and every purpose.

Dr. TAYLOR. It is my impression that in most of these cases, at least, that condition can be met. I am not able to say that they can in every case, for the donors are in three of these cases in position to redeem without condition; as to the other case I am not clear.

The CHAIRMAN. Would such action result in the establishment of stations which we would be obliged to maintain at a large expense?

Dr. TAYLOR. It does not in any way change the status of these stations in so far as our improvement or use of them is concerned.

Mr. ANDERSON. It does to this extent, doesn't it, Doctor, that, having taken a lease or contract based upon the supposition of the continuance of the station, the moral obligation is there to maintain it for the period or term for which we took it?

Dr. TAYLOR. The 99 years covers that, in so far as we can look forward to it.

Mr. ANDERSON. Mr. Haugen is inquiring into the proposition of whether or not we are going to be tied up to a more or less continuous and almost perpetual expense for maintenance of these stations, whether we want to or not. If we have got them under a 99-year lease, or some lease, conditional upon our carrying on certain work out there, we are morally obligated, of course, to carry on that work during the period.

Dr. TAYLOR. Yes; that is true.

The CHAIRMAN. The question, then, is of policy; is it wise to embark upon this policy?

Dr. TAYLOR. In so far as the continuance of the work or its development or enlargement is concerned, I think it would be exactly as it is. Congress could at any time, if title rested here, without ethical or other breach, close up these stations and dispose of the lands in such way as might be deemed best at the time.

Mr. ANDERSON. Let me ask you this question. Perhaps I ought to ask it of the solicitor, but he is not here. You put these buildings on this property that you lease for 99 years. Who owns the buildings?

Dr. TAYLOR. We do.

Mr. ANDERSON. Suppose we abandon the project, would that still be true?

Dr. TAYLOR. Yes, sir; that is my understanding.

The CHAIRMAN. So far as Congress is concerned, it has not been accepted.

Dr. TAYLOR. No; this is a recommendation.

The CHAIRMAN. The 99-year lease is an arrangement between the department and the donors?

Dr. TAYLOR. Yes; that is an administrative matter.

We are asking for the omission of the language providing \$50,000 for the establishment of a plant detention station. An excellent site has been purchased for this purpose about 15 miles out of Washington.

The CHAIRMAN. How much did you pay for it?

Dr. TAYLOR. We paid \$10,000 for 50 acres.

The CHAIRMAN. Where is it?

Dr. TAYLOR. It is about 14 miles out in Maryland.

The CHAIRMAN. Which direction?

Dr. TAYLOR. Toward Baltimore, fronting on the Baltimore, Washington & Annapolis trolley.

The CHAIRMAN. Is it near Beltsville?

Dr. TAYLOR. Near Bell Station. It is about 2½ or 3 miles east of Beltsville, on a warmer soil, a soil more suitable for the handling of the wide range of plants which we have.

Mr. ANDERSON. That must be somewhere near the animal farm.

Dr. TAYLOR. It is about 2½ or 3 miles from the Beltsville farm of the Bureau of Animal Industry and is an excellent piece of land for this purpose.

The CHAIRMAN. You paid \$200 an acre for that land?

Dr. TAYLOR. Yes, sir.

The CHAIRMAN. Is land that high there?

Dr. TAYLOR. Yes, sir. It rents for cash rental on that basis, where rented in that vicinity. This was a piece of land which had been occupied for 28 years by a very efficient farmer who came back to Maryland from South Dakota and put into effect a three-crop rotation, with potatoes, corn, and clover. It is an excellent piece of land, in excellent condition for our purpose. Of course we needed high-grade land in condition for immediate use.

The CHAIRMAN. Is that the prevailing price in that vicinity?

Dr. TAYLOR. Yes; for choice selections.

The CHAIRMAN. Are there any improvements on it?

Dr. TAYLOR. There are excellent fences, but no buildings on this portion of that tract.

The CHAIRMAN. Your next item is 108, "For the purchase, propagation, testing, and distribution of new and rare seeds; for the investigation and improvement of grasses, alfalfa, clover, and other forage crops." Do you propose to segregate that amount into two items?

Dr. TAYLOR. In 108 we recommend the separation of the two features which have been carried in a single item, namely, the purchase, propagation, testing, and distribution of new and rare seeds—these are field seeds—and the general forage crop work.

The CHAIRMAN. Why do you make that suggestion?

Dr. TAYLOR. In the interest of the clearer expression of the purpose of the appropriation. This is the only place in the bill where we have a seed distribution provided for in a paragraph along with investigational work.

The CHAIRMAN. Will that result in setting up two offices in place of one?

Dr. TAYLOR. No, sir; it will involve no increase of any character. It will not increase the expense of any character or the personnel.

The CHAIRMAN. What is the increase?

Dr. TAYLOR. Under the investigational paragraph, which is 110, the same character of investigational work as was carried previously under the joint item is contemplated.

The CHAIRMAN. You ask for no increase?

Dr. TAYLOR. Not for distribution. We do ask for an increase in the investigational paragraph.

The CHAIRMAN. I take it the price of seed has advanced. Can you meet the demands and requirements for seed with this amount?

Dr. TAYLOR. We feel that we can cope adequately with the situation as the prices stand.

The CHAIRMAN. How do the prices compare with those of last year?

Dr. TAYLOR. They are very materially higher for clover and alfalfa, but I think rather lower on the grain sorghums, kafir, and those forage crops of which there has been a large crop this year.

The CHAIRMAN. Are you sending out new and rare seeds?

Dr. TAYLOR. Yes, sir.

The CHAIRMAN. Have you not been sending out mostly alfalfa and Sudan grass for a number of years?

Dr. TAYLOR. Yes, sir.

The CHAIRMAN. Are you adding new seeds to the list?

Dr. TAYLOR. As a new strain or type is developed to the point where it appears unquestionably an improvement, the seed is distributed. Take, for instance, the Great Northern bean, which was included for the first time last year in the distribution and which was sent particularly to Montana and Idaho.

The CHAIRMAN. Will you furnish a list of the seeds sent out?

Dr. TAYLOR. Yes, sir.

(The statement referred to follows:)

Packages of new and rare forage-crop seeds distributed through the cooperation of Members of Congress, 1918-19.

Alfalfa:

Dakota	4,345
Grimm	2,320
Do	4,221
Kansas	15,020
Peruvian	1,225

Clover, red

Cowpeas:

Brabham	13,130
Early Buff	220
Groitt	490

Feterita	6,545
Field beans, G. N.	1,325
Field peas:	
Bangalla	3,925
Carleton	3,710
Kaiser	12,175
Paragon	
Kafir, D. B. H.	2,940
Millet, kursk	1,850
Milo, yellow	350
Natal grass	960
Rhodes grass	420
Sorghum:	
Dakota amber	470
Freed	50
Orange	
Red amber	4,470
Sumac	2,620
Soy beans:	
Biloxi	2,623
B. E.	805
Haberlandt	9,160
Hahlo	
Ito San	4,200
M. Y.	2,520
Manchu	4,585
Peking	80
Tokio	1,360
Virginia	5,000
Wilson 5	3,140
Sudan grass	57,575
Sweet clover:	
White	1,765
Yellow	90
Velvet beans:	
Bush	1,208
Georgia	100
Osc	9,675
Total	186,575

Packages of new and rare forage-crop seeds distributed on miscellaneous requests.

Alfalfa:	
Dakota	50
Grimm (2-pound)	185
Grimm (4-pound)	74
Kansas	330
Peruvian	34
Clover, Red	49
Cowpeas:	
Brabham	189
Early Buff	29
Groit	7
Feterita	66
Field beans, Great Northern	9
Field peas, Bangalla	86
Field peas, Carleton	64
Field peas, Kaiser	84
Kafir	57
Millet, Kursk	44
Milo, yellow	88
Natal grass	29
Rhodes grass	96

Sorghum :	
Dakota Amber	28
Freed	7
Red amber	4
Sumac	2
Soybeans :	
Biloxi	83
Black eyebrow	73
Haberlandt	99
Hahto	133
Ito San	8
Mammoth yellow	66
Manchu	28
Peking	7
Tokio	14
Virginia	73
Willson 5	49
Sudan grass	587
Sweet clover :	
White	102
Yellow	11
Velvet beans :	
Bush	170
Georgia	77
Osceola	43
Total	3, 179

Quart packages of improved types of cotton seed distributed through congressional cooperation 1918-19.

Acala	7, 200
Columbia	8, 775
Dixie	7, 600
Durango	29, 175
Holdon	6, 300
Lone Star	26, 225
Meade	900
Trice	25, 505
Total	111, 680

DISTRIBUTION OF HALF-BUSHEL PACKAGES (16 QUARTS TO HALF-BUSHEL).

Acala	113
Columbia	76
Dixie	82
Durango	144
Holdon	3
Lone Star	804
Trice	227
Total	1, 449

Dr. TAYLOR. In the research paragraph (item 110) we propose material increases for the investigation of these important livestock supporting crops. The first item is an estimated increase of \$13,000 to meet the increased costs of labor and materials in the prosecution of the experimental work on forage crops carried on on the existing basis by the various field stations of this bureau. The reason for that is clear, I think, in view of the increased costs of conducting such work.

The CHAIRMAN. What do you propose to add to the list that you are now sending out?

Dr. TAYLOR. That is on page 104, Mr. Chairman.

The CHAIRMAN. That is to take the place of the language in 108.

Dr. TAYLOR. Part of it.

The CHAIRMAN. What do you add to it?

Dr. TAYLOR. We add no new language. We merely split the paragraph into two parts.

The CHAIRMAN. How much more money is required?

Dr. TAYLOR. Our estimate covers \$68,000 of new money for the items as they show on page 104.

The CHAIRMAN. Last year you had \$139,780 for the two items. Now you ask for \$56,600 for the seed item and \$148,480 for the forage crop work.

Dr. TAYLOR. The second and largest item is \$30,000 for pasture investigations, especially with reference to the southern coastal plain region.

The CHAIRMAN. You are asking for next year \$205,000 for the two items, 109 and 110, for which \$139,780 is appropriated this year?

Dr. TAYLOR. Yes; or an increase, including transfers to the statutory roll, of \$68,000. The largest item in that increase is \$30,000 for pasture investigations in the southern coastal plains.

The CHAIRMAN. That is new, is it not?

Dr. TAYLOR. That is new work. It is work which we have only been able to look at and attack in a very incidental way heretofore, and it involves the determination of the forage producing capacity of 75,000,000 acres of cut-over land in the South, where an effort is being made to develop an enduring and stable live-stock industry. There are some possibilities of livestock production on the range basis, but, apparently, every live-stock enterprise must have a tilled crop nucleus to tide it through shortages of pasture and range feed. The pasture problem of that region is not solved, and we believe the time has come to undertake investigations along that line.

The CHAIRMAN. Is this in cooperation with the Bureau of Animal Industry?

Dr. TAYLOR. Yes, sir. We carry the crop and pasture investigations.

Mr. ANDERSON. In what States is this land?

Dr. TAYLOR. This land starts in North Carolina and reaches around into the eastern part of Texas through the whole coastal plain.

Mr. ANDERSON. If that is true, there must be a very wide variation of soil and climatic conditions.

Dr. TAYLOR. There is a considerable variation in the soil and climatic conditions but not nearly so great as there would be in a straight strip from east to west across the country from North Carolina.

Mr. ANDERSON. My impression is that the Bureau of Animal Industry has been carrying on some experiments in the South with a view to determine the possibility of beef production and incidentally solve the problem of forage. What is going to be the difference between the work you are proposing and what they are doing?

Dr. TAYLOR. Our work is the production of crops. Their work is their utilization.

Mr. ANDERSON. When we started out with cattle, then, we got the cart before the horse apparently.

Dr. TAYLOR. In logical order; yes.

Mr. ANDERSON. I know it struck me that way at the time.

Is this section of the country settled up now, or is it open and uninhabited?

Dr. TAYLOR. It is scatteringly settled along the railroads, and in places farming is being attempted—has been attempted here and there. Many efforts have failed. Occasionally one has succeeded. It is a great national asset. It appears to have essential productive-ness, which nobody knows how to materialize or bring through.

Mr. ANDERSON. I had an impression for some time that the greatest possibility in increasing the meat supply was in the South, but I do not just see how we are going to get any results from this investigation.

Dr. TAYLOR. Beef production, primarily, so far as we know anything of beef production, rests on grass or pasture, which is the cheapest feed that grows. The animal does the harvesting. The basic question here is whether the number of cattle that can be carried on it during the better feed periods of the year can be maintained through the year with forage crops which can be grown on the better soils under modern tillage methods right there in connection with it.

Mr. ANDERSON. Suppose you find out that you can raise grass down there, that you can raise enough grass to carry you over your period of scant growth, what are you going to do next? That is an interesting problem, and when you solve it what are you going to do about it?

Dr. TAYLOR. The stockmen of that region, if satisfied that a dependable adequate supply of feed can be grown, will, I think, take care of that phase of it. That is our judgment. They are ready waiting. They are investing; they are plunging in experimentation of their own. Some of them have had heavy losses. A few of them appear to be making progress.

Mr. ANDERSON. Are any of the States in which these lands occur making any investigations along this line?

Dr. TAYLOR. Not adequate investigations. It is a big regional problem. It has been so big that no State has undertaken to tackle it effectively.

Mr. ANDERSON. If it is simply a question of determining whether grass will grow down there or not, it is not a very big problem, it strikes me.

Dr. TAYLOR. It is a tremendously big problem in so far as we have knowledge of the dependability and reliability of grasses.

Mr. ANDERSON. Is it a question of the possibility of developing the kinds of grasses that will grow there?

Dr. TAYLOR. Of finding them and getting them there and trying them out and determining whether they will grow. The same is true of other forage plants, particularly the legumes. It is a country in which we have no reason to expect that alfalfa or red clover will succeed at all, but we have reason to believe that there are crops that will succeed there if properly balanced.

The next item, \$15,000 for red-clover investigations, is one of outstanding importance in view of the progressive decline of red-clover acreage in the Middle Western and Northern States. The figures of acreage and of yield during the last 20 years show a progressive decline, due to trouble in getting stands, trouble in main-

taining stands, so-called winter killing, some of which probably is actually winter killing and some of which is possibly ascribable to the use of imported seed from the southern European countries like Italy, which is not suited to our colder climates.

Mr. ANDERSON. When you say red clover, are all of the clovers that we are familiar with in the northern part of the country included under red clover?

Dr. TAYLOR. Yes, both medium and mammoth. The corner stone of our fertility in the Middle West, from the Great Plains eastward, is red clover. It is a difficult problem to attack—so difficult that the States have not attacked it. We believe the time has come when it must be attacked if we are not to witness a gradual decline of soil fertility in our corn and wheat lands, particularly our winter-wheat producing territory, and therefore an increased dependence upon commercial fertilizer.

Mr. ANDERSON. I do not know very much about farming, and may be this is an absurd question, but I had an impression that one of the reasons for the reduction in clover acreage is the increased use of alfalfa and other legumes—cow peas and all that sort of stuff—and the use of corn fodder. In the country with which I am familiar, while we recognize, of course, that clover has great advantages in soil improvement and so forth, it is more or less precarious, and always has been, owing to special difficulties. Hence a good many people are siloing their corn, raising cow peas, raising crops of that sort which perhaps are not so precarious.

Dr. TAYLOR. I think you are right so far as Minnesota and considerable portions of Wisconsin are concerned; but your farmers have not experienced the difficulties that the corn-belt farmers of Illinois, Indiana, Iowa, and southern Michigan (which latter is not distinctly corn-belt country), Kentucky, Tennessee, and further east, to a considerable extent in New York and Pennsylvania, have experienced. It is in our judgment a big practical agricultural question which needs solution.

Mr. ANDERSON. Are you seeking now in this project to ascertain the causes of the decline?

Dr. TAYLOR. Yes, sir.

Mr. ANDERSON. That is the purpose of this appropriation?

Dr. TAYLOR. That is the first step, and the next step will be the overcoming of those causes.

Mr. ANDERSON. You might find those causes to be such that it would be disadvantageous to try to overcome them.

Dr. TAYLOR. If that should develop, then we could stop there and proceed in some other direction with some other crop; but clover fits into the small-grain rotation as no other legume does in the corn belt, and the farmer hardly knows how to get along without clover, except to the extent that he can buy and apply fertilizer, and there is a limit to which he can go in that direction without reducing harmfully the humus content of his soil.

The remaining item in the paragraph, for which there is an increase, is \$10,000 for investigations looking to increasing the carrying capacity of semiarid range lands. The only probable improvement of those ranges with respect to their yield of forage appears to be the discovery and introduction of plants which can be brought

from countries having similar conditions. Plants which have shown ability to take hold and persist and spread come mostly from countries possessing similar conditions, and we feel that an effort should be made to determine whether crops can be obtained that will take hold, thrive, endure, and spread in the semiarid range country.

The CHAIRMAN. Has quack grass been tried out in the semiarid regions?

Dr. TAYLOR. Quack grass is a troublesome pest in certain parts of North Dakota where they want to raise wheat rather than grass.

The CHAIRMAN. Is that in the dry section?

Dr. TAYLOR. Not in the extremely dry section. That is more in the moist spots that get the run-off from the higher ground.

The CHAIRMAN. What is your next item?

Dr. TAYLOR. I believe that completes the list.

The CHAIRMAN. Item 111, page 105, "for general administrative expenses connected with the above-mentioned lines of investigation."

Dr. TAYLOR. There is no change in that, I believe. The congressional seed distribution, item 112, page 106, stands as it was last year.

Mr. ANDERSON. Was there any increase last year in that?

Dr. TAYLOR. As it is this year, I should say. The appropriation was increased for this year and the estimate carries the same amount for next year—20,000 vegetable and 2,000 flower packages. It increases the allotment a third from last year.

That would be the minimum. Of course that would be determined largely by the crop yet to be grown, but we feel that the highest prices for vegetable seeds are past, and that unless there should be a disastrous season in 1920 the quotas could be somewhat increased over those of the current year.

The CHAIRMAN. This amount will be sufficient to provide for the usual allotment?

Dr. TAYLOR. Yes, sir.

The CHAIRMAN. Is there anything else?

DEMONSTRATIONS ON RECLAMATION PROJECTS.

Dr. TAYLOR. We administer an item for demonstrations on reclamation projects, page 271, for which no increase is asked. The amount is decreased by the transfer of one clerk to the statutory roll now on this work. That is the demonstration work upon the Government reclamation projects, which carries to the farmers there the results of the work done at the field stations.

The CHAIRMAN. That is on page 271, item 1, "to enable the Secretary of Agriculture to encourage and aid in the agricultural development of the Government reclamation projects." That comes under your bureau?

Dr. TAYLOR. Yes, sir.

PREVENTION OF PLANT-DUST EXPLOSIONS AND FIRES.

Dr. TAYLOR. That, I believe, is all. There is an item in which the Bureau of Plant Industry is interested, Mr. Chairman, on page 285, paragraph 13, the dust-explosion investigation.

The CHAIRMAN. Does that come under your bureau?

Dr. TAYLOR. A small portion of it does; \$5,000 of the \$100,000 estimated for would be used by the Bureau of Plant Industry, which does the technical work of the smut-dust determinations, in connection with the experimental work in the Bureau of Chemistry; studying the causes of these explosions and devising methods of preventing them. That will be discussed, I assume, in detail by Dr. Alsberg, of the Bureau of Chemistry, which has the larger share in it.

I believe that is all, Mr. Chairman.

The CHAIRMAN. Thank you very much, Dr. Taylor. It is now nearly 6 o'clock, we will recess.

(Thereupon, at 5.50 o'clock p. m., the committee recessed until to-morrow, Saturday, December 13, at 10 o'clock a. m.)

Activities under lump-fund items, Bureau of Plant Industry.

Project.	Allotment, 1920.	Estimate, 1921.	Increase (roman) or decrease (italic).
Investigations of plant diseases:			
General laboratory investigations.....	\$16,500	\$16,500	
Bacterial diseases of wheat.....	6,000	6,000	
Bacterial diseases of corn.....	5,000	5,000	
Bacterial wilt of cucurbits.....	4,000	4,000	
Bacterial wilt of tobacco.....	6,000	6,000	
Tobacco root-rot and similar diseases in Southern States.....	5,000	5,000	
Pathological collections.....	10,000	10,000	
Plant disease survey.....	9,520	24,520	\$15,000
Total.....	62,020	77,020	15,000
Fruit disease investigations:			
General orchard diseases.....	20,275	20,275	
Citrus and subtropical fruit diseases.....	15,260	15,260	
Grape and small fruit diseases.....	21,500	21,500	
Orchard spraying experiments.....	5,800	5,800	
Fruit rots and spots.....	11,600	11,600	
Physiological fruit diseases.....	6,500	6,500	
Pathological inspection of fruits during processes of marketing.....		7,000	7,000
Total.....	80,935	87,935	7,000
Citrus canker eradication.....	196,320	¹ 111,320	<i>85,000</i>
Investigations in forest pathology:			
Diseases of ornamental and shade trees.....	8,335	8,335	
Pathological problems in wood conservation.....	17,440	17,440	
Forest tree diseases.....	32,790	32,790	
Imported and epidemic tree diseases.....	23,750	23,750	
Total.....	82,315	² 82,315	
White-pine blister rust control.....	220,728	³ 220,728	
Cotton, truck, and forage crop disease investigations:			
Cotton diseases.....	3,700	3,700	
Truck crop diseases.....	67,850	77,850	10,000
Forage crop diseases.....	3,660	7,160	3,500
Advisory extension work.....	4,120	4,120	
Pathological inspection of vegetables during processes of marketing.....	8,470	18,470	10,000
Total.....	87,800	⁴ 111,300	23,500
Crop physiology and breeding investigations:			
Testing farms on Indian reservations.....	10,000	10,000	
Date culture and breeding.....	14,500	14,500	
Smyrna fig culture.....	4,500	4,500	
Citrus breeding and testing.....	15,400	15,400	
Dry-land arboriculture.....	2,000	2,000	
Miscellaneous.....	2,060	2,060	
Total.....	48,460	¹ 48,460	

¹ Includes \$1,600 transferred to statutory roll.
² Includes \$1,200 transferred to statutory roll.

³ Includes \$6,560 transferred to statutory roll.
⁴ Includes \$2,400 transferred to statutory roll.

Activities under lump-fund items, Bureau of Plant Industry—Continued.

Project.	Allotment, 1920.	Estimate, 1921.	Increase (roman) or decrease (italic).
Soil bacteriology and plant nutrition investigations:			
Distribution and study of legume bacteria.....	\$12,050	\$12,050	.....
Investigations in soil bacteriology.....	15,060	15,060	.....
Plant-nutrition investigations.....	11,950	21,950	<i>\$10,000</i>
Total.....	39,060	49,060	10,000
Soil fertility investigations:			
Maintenance of soil fertility.....	8,436	8,436	.....
Causes of unproductive soils.....	5,522	5,522	.....
Transformation and formation of soil humus by biochemical factors.....	6,725	6,725	.....
Origin of organic constituents in soils.....	5,051	5,051	.....
Means for improvement of unproductive soils.....	4,235	4,235	.....
Effect of fertilizers and soil amendments.....	5,091	25,091	<i>20,000</i>
Total.....	35,060	55,060	20,000
Crop acclimatization investigations:			
Acclimatization, adaptation, and breeding of cotton.....	58,280	58,280	.....
Acclimatization, adaptation, and extension of corn.....	6,770	6,770	.....
Acclimatization and adaptation of tropical plants.....	3,100	3,100	.....
Production of fiber for binder twine.....	21,830	21,830	.....
Flax fiber production.....	3,500	3,500	.....
Hemp fiber production.....	4,000	4,000	.....
Phormium (New Zealand flax) production.....	3,000	3,000	.....
Miscellaneous fiber investigations.....	3,930	3,930	.....
Total.....	104,410	104,410	.....
Drug plant, poisonous plant, physiological, and fermentation investigations:			
Drug and related plants and their products.....	25,920	25,920	.....
Poisonous plant investigations.....	2,500	3,500	<i>1,000</i>
Physiological and fermentation investigations.....	30,400	30,400	.....
Total.....	58,820	59,820	1,000
Agricultural technology investigations:			
Free-living and plant-infesting nematodes.....	11,200	11,200	.....
Fiber technology.....	8,340	8,340	.....
Investigation of agricultural apparatus.....	1,790	1,790	.....
Miscellaneous biological technology.....	3,110	3,610	<i>500</i>
Study of Hawaiian lunsii other than cane.....	800	.....	.....
Total.....	24,940	24,940	.....
Biophysical investigations:			
Cooperative biophysical investigations.....	17,500	17,500	.....
Special biophysical investigations.....	15,000	15,000	.....
Total.....	32,500	32,500	.....
Seed-testing laboratories:			
Seed testing.....	15,460	18,360	<i>2,900</i>
Seed purity and vitality investigations.....	7,740	10,540	<i>2,800</i>
Adulterated-seed investigations.....	8,640	13,880	<i>5,250</i>
Enforcement of seed-importation act.....	4,740	6,790	<i>1,950</i>
Total.....	36,580	49,580	12,900
Cereal investigations:			
Production and improvement of cereals.....	94,805	129,805	<i>35,000</i>
Corn improvement.....	40,000	40,000	.....
Cereals and flax tillage rotation investigations.....	3,000	3,000	.....
Cereals-disease investigations.....	39,700	89,700	<i>50,000</i>
Black and stripe rust investigations.....	100,000	100,000	.....
Barberry eradication.....	150,000	150,000	.....
Corn root and stalk diseases.....	25,000	25,000	.....
Total.....	452,505	587,505	<i>135,000</i>
Control of take-all, flag smut, and other cereal diseases.....	50,000	50,000	.....
Tobacco investigations:			
New Eng and cigar-wrapper tobacco investigations.....	3,550	3,550	.....
Maryland export tobacco investigations.....	1,700	1,700	.....
Burley tobacco investigations.....	1,500	1,500	.....
Western fire-cured tobacco investigations.....	1,800	1,800	.....

¹ Includes \$12,800 transferred to statutory roll.

Activities under lump-fund items, Bureau of Plant Industry—Continued.

Project.	Allotment, 1920.	Estimate, 1921.	Increase (roman) or decrease (italic).
Tobacco investigations—Continued.			
New York binder and filler tobacco investigations.....	\$1,950	\$1,950	
Sun-cured, fire-cured, and flue-cured tobacco investigations.....	10,300	10,300	
Pennsylvania cigar-filler tobacco investigations.....	3,500	3,500	
Wisconsin cigar-binder tobacco investigations.....	3,500	3,500	
Miscellaneous tobacco investigations.....	4,200	4,200	
Total.....	32,000	32,000	
Alkali and drought-resistant plant investigations:			
Breeding and physiology of alkali and drought-resistant plants..	16,670	16,670	
Egyptian cotton breeding.....	7,610	7,610	
Total.....	24,280	24,280	
Sugar-plant investigations:			
Investigations of the status of the beet-sugar industry in the United States.....	18,815	18,815	
Economic practice in crop production in sugar-beet areas.....	18,500	18,500	
Sugar-beet seed production.....	14,300	14,300	
Sugar-beet nematode work.....	10,000	10,000	
Sweet sorghum investigations.....	5,000	5,000	
Sugar-cane sirup investigations.....	7,500	7,500	
New sugar-cane disease (mosaic).....	20,000	20,000	
Total.....	94,115	94,115	
Economic and systematic botany:			
Range investigations.....	3,600	3,600	
Economic botany of native races.....	5,150	5,150	
Botany of economic grasses.....	7,050	7,050	
Systematic investigations in economic botany.....	6,400	6,400	
Total.....	22,200	22,200	
Dry-land agriculture investigations: Methods of crop production under semiarid or dry-land conditions.....	159,000	169,000	\$10,000
Western irrigation agriculture investigations.....	73,580	83,580	10,000
Nut-culture investigations.....	20,000	20,000	
Pomological investigations:			
Fruit-storage investigations.....	15,000	15,000	
Grape culture and utilization.....	20,000	20,000	
Fruit-production investigations.....	19,250	24,250	5,000
Fruit improvement through breeding, selection, and domestica- tion.....	12,900	12,900	
Systematic investigations in pomology.....	5,625	5,625	
Fruit utilization investigations.....	7,425	7,425	
Advisory extension work in cooperation with the States Rela- tions Service.....	3,000	3,000	
Total.....	83,200	88,200	5,000
Experimental gardens and grounds.....	11,690	11,690	
Horticultural investigations:			
Factors affecting the storage life of vegetables.....	4,500	14,500	10,000
Truck crop production investigations.....	15,000	20,000	5,000
Truck crop improvement investigations.....	900	900	
Systematic olericulture.....	100	100	
Irish potato production investigations.....	29,600	39,600	10,000
Vegetable utilization investigations.....	4,000	4,000	
Landscape gardening and floriculture, including bulb culture.....	16,000	21,000	5,000
Advisory extension work in horticulture in cooperation with States Relations Service.....	3,240	3,240	
Total.....	73,340	103,340	30,000
Investigations in nursery methods and stocks used in propagating plants (new).....		30,000	30,000
Arlington experimental farm.....	21,900	28,900	5,000

¹ Includes \$1,200 transferred to statutory roll.

² Includes \$1,400 transferred to statutory roll.

Activities under lump-fund items, Bureau of Plant Industry—Continued.

Project.	Allotment, 1920.	Estimate, 1921.	Increase (roman) or decrease (italic).
Foreign seed and plant introduction:			
Plant distribution.....	\$28,000	\$28,000	
Plant introduction field stations.....	\$7,500	69,000	* \$18,500
Foreign explorations.....	17,200	17,200	
Total.....	132,700	114,200	18,500
Forage crop investigations:			
Pasture investigations.....	10,500	40,500	30,000
Clover investigations.....	10,000	25,000	15,000
Investigations to increase the carrying capacity of semiarid range lands.....	980	10,980	10,000
Weed investigations.....	6,500	6,500	
Investigations with reference to dry-land forages.....	13,500	18,840	5,340
Alfalfa investigations.....	12,000	13,500	1,500
Grass investigations.....	10,500	12,660	2,160
Investigations of miscellaneous forage crops.....	18,000	22,000	4,000
Total.....	81,980	* 149,980	68,000
Purchase and distribution of new and rare seeds.....	57,800	* 57,800	
Administrative and miscellaneous.....	29,040	* 29,040	
Purchase and distribution of valuable seeds.....	358,980	* 358,980	
Total.....	2,888,358	3,117,258	228,900

¹ Includes \$50,000 for the purchase of land and erection of buildings for plant detention station at Bell, Md.

² Deducting \$50,000 for purchase of land, erection of building, etc., in connection with the establishment of the plant detention and inspection station, the actual increase in funds under that project is \$31,500.

³ Includes \$1,500 transferred to statutory roll.

⁴ Includes \$1,200 transferred to the statutory roll.

⁵ Includes \$3,080 transferred to the statutory roll.

⁶ Includes \$3,000 transferred to the statutory roll.

COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Tuesday, December 16, 1919.

The committee met, pursuant to recess, at 10 o'clock a. m. Hon. Gilbert N. Haugen (chairman) presiding. Present: Members of the committee.

FOREST SERVICE.

**STATEMENT OF MR. HENRY S. GRAVES, FORESTER AND CHIEF
OF THE FOREST SERVICE, DEPARTMENT OF AGRICULTURE.**

The CHAIRMAN. Col. Graves, we will be pleased to hear you.

Mr. GRAVES. The Forest Service is charged with three broad functions: First, the administration and care of the national forests; second, the encouragement of the practice of forestry outside of the national forests, through cooperation and public education; third, research in forestry, forest utilization, and forest products. Our work of examination and appraisal of forest lands in connection with the purchase of land under the Weeks law would naturally come under the first head—the administration and care of the national forests.

Our largest function is in connection with the public forests, an activity which engages from 85 to 90 per cent of our personnel and requires about the same proportion of our total expenditures. There are 151 national forest units. The lands aggregate over 150,000,000 acres, occurring in 26 States, in addition to Alaska and Porto Rico.

The CHAIRMAN. How many forests did you state?

Mr. GRAVES. There are 151 national forests and, in addition to that, there are some units which have not yet been organized as national forests.

Mr. JONES. What designates a unit? What do you mean when you say a "forest unit"?

Mr. GRAVES. A national forest, such as, in the East, the White Mountain National Forest, or in the list of forests—

Mr. JONES. How do you determine a unit?

Mr. GRAVES. There is a proclamation by the President declaring that a certain area is established as a national forest, giving the name and describing the area.

Mr. JONES. Then there have been about 151 of those proclamations?

Mr. GRAVES. Yes.

Mr. JONES. Describing particular sections?

Mr. GRAVES. Yes.

Mr. JACOWAY. How many acres have you in all?

Mr. GRAVES. There are nearly 155,000,000. The work of administering the national forests falls under several general heads:

First, the protection from fire, insects, and other injuries, of approximately \$1,000,000,000 worth of timber and young growth.

Second, the handling of the current business connected with the use of the resources, a business which brings in nearly \$4,500,000 in receipts and involves upward of 90,000 separate transactions every year.

Third. The improvement and development of the public property, making the forests more accessible and the resources more available for use.

Fourth. The classification of lands and the adjustment of private claims within the boundaries of the forests.

Fifth. The activities connected with the purchase of lands under the Weeks law.

Finally, investigations, experiments, and demonstrations to develop good methods of forestry and utilization.

One of our greatest tasks is the protection of the public forests from fire. We have had this last summer a culmination of three years of great drought in the northwestern forests, causing the most difficult season from the standpoint of protection in the history of the national forests. We have had the greatest loss from fires since 1910. The season was the most severe from the standpoint of drought since 1889. At that time they had also a series of three dry years with the intervening winters characterized by light snowfall. The result was that the ground was thoroughly dried out, the surface cover consisting of needles, limbs, and deadwood, thoroughly desiccated; the soil itself was dry to a great depth; many springs and streams were dried up, and the rivers were lower than for thirty years. The result of that situation was that when a fire got started, it ran very rapidly, much more rapidly than in ordinary dry years.

In addition, the trees themselves, after this series of dry years, gave out less water than usual by evaporation, because of the dryness of the soil, and there appeared an unusual amount of waxy substance on the needles and even under the epidermis of the needles. The fact that there was less water in the needles and the presence of this waxy substance made the tree crowns much more inflammable than usual. This explains some of the very curious phenomena which occurred this last summer.

Mr. JONES. And the trees are more subject to windfalls, are they not, with the extra dry land; they blow down easier, do they not?

Mr. GRAVES. I think that action did not occur very often. There was no very unusual amount of windfall this summer. I think it is more often that a windfall occurs where the soil has been very much soaked up and is very wet and soft. Of course, the soil got very hard and tended to hold the roots fairly well. The fires were about the same in number last summer as during the last two or three years. We had to fight nearly 6,250 fires. There were periods when there were an unusual number of lightning storms. Lightning would frequently set a good many fires on a single forest. We had 63 fires set by one dry electric storm. The swift movement of the fire—

Mr. JONES. That is on one unit, you mean?

Mr. GRAVES. Yes, sir. The swift movement of the fire may be illustrated by one or two incidents; one, for instance, where a fire ran up a slope having an elevation from the bottom, where the fire started, of about 800 feet, and perhaps a mile and a quarter distance, in 20 minutes. Near Missoula, Mont., one fire burned over 16,000 acres in 24 hours. A fire on one of the Idaho forests ran 20 miles in a single afternoon; another in the neighboring forest, 15 miles in half a day. Frequently on slopes, where the trees were some distance apart, open stands, with trees perhaps 10 or 20 feet apart, seemed to burst into flame all at once.

Under these conditions, the fighting of fires was unusually difficult, more particularly in the remote sections which have not yet been opened up by roads and trails. We have still very large areas in the Northwest where it takes from three to five days to get to a fire with a crew of men. Where the conditions of the forests are such as they were this last summer, obviously there is a considerable conflagration by the time the men reach those remote sections. It happens, also, that in a number of instances these remote regions are peculiarly subject to electric storms. The electric storms are more frequent in certain places than elsewhere. Among such centers of electric storms are some of the most undeveloped regions, and it was there we had our greatest difficulties.

Of the total number of fires, however, about 75 per cent were put out by our organization before they covered 10 acres. The balance, about 1,600 fires, covered more than 10 acres; and it is obvious that the greatest damage was done by them.

Mr. JACOWAY. How many fires did you have in all?

Mr. GRAVES. 6,234. The greatest cause of fires was lightning. In the Northwest, over 40 per cent of the fires were started by lightning. There was an increase in the fires set by campers this year, due to the fact that there were more campers in the woods than ordinarily. There was a decrease in the railroad fires. Our cooperative arrangement with the railroads has resulted in a considerable decrease in fires set from that cause, and in addition the patrols along the railroad succeeded in putting out a majority of the fires before they reached 10 acres.

Mr. JONES. And this would be by common carriers that have no interest in the adjoining lands, would it not?

Mr. GRAVES. Yes; although the Northern Pacific is interested in adjoining lands.

Mr. JONES. What is your experience about fires starting from the lumber operations or the tram roads—I mean as to doing any damage.

Mr. GRAVES. We have had a number of serious fires start from the tram roads. We had some fires start also from donkey engines and other causes in lumbering operations. Altogether, there were—

Mr. JONES. What percentage were set by campers this year? I do not want to anticipate anything you are going to say in the future.

Mr. GRAVES. I have that here.

Mr. JONES. If you are going to bring it out a little later, that will be sufficient.

Mr. GRAVES. Twenty-one per cent.

Mr. JONES. By campers?

Mr. GRAVES. Yes.

Mr. JONES. How do they get in there for camping operations? Is there any regulation with reference to that?

Mr. GRAVES. The people are allowed to camp in the national forests without permits, except on certain forests where the recreation use has reached a point that calls for such oversight.

Mr. JONES. What percentage by common carriers?

Mr. GRAVES. Ten.

Mr. JONES. Can you tell from your data whether the fire was started from the spark of the locomotive or from cigarettes thrown out of the trains?

Mr. GRAVES. It is pretty difficult sometimes to tell whether it is from that cause or even from some one walking along the tracks.

Mr. JONES. But it starts in the right of way?

Mr. GRAVES. It starts in the right of way.

Mr. JONES. That is 10 per cent, you say?

Mr. GRAVES. Yes. That is a reduction from the figure for last year, which was over 11 per cent, and that for the year before which was 13 per cent.

Mr. JONES. Is that in territory where they burn oil or coal?

Mr. GRAVES. Formerly the Milwaukee road burned oil, but now it is electrified. Other roads burn coal.

Mr. JONES. That is affecting the public lands? There are other roads that have to burn oil.

Mr. GRAVES. The other railroads running through the northwestern mountains burn coal.

Mr. JONES. That is, probably through your public lands they do. In the Adirondacks the locomotives have to burn oil.

Mr. GRAVES. Yes; they have to burn oil there. The Milwaukee was the only road burning oil in the Northwest.

Mr. JACOWAY. The road from Kansas City to Port Arthur, Tex., burns oil.

Mr. GRAVES. I had reference to the North. Of course, the Southern Pacific system should be mentioned.

Mr. JONES. How do you figure the balance of this 100 per cent? Forty per cent is started by lightning?

Mr. GRAVES. Forty per cent was in the Northwest. The average, taking the rest of the country, is somewhat lower than that. I will give you the list so that it can be balanced: Railroads, 10 per cent; lightning, 35 per cent; incendiaries, 4 per cent; brush burning, 5 per cent; campers, 21 per cent; logging and milling operations, 4 per cent; unknown, 18 per cent; and then a miscellaneous item, for which I have not yet the complete returns for this year, of 3 per cent.

Mr. JONES. You refer to incendiary fires; you mean set on purpose?

Mr. GRAVES. Yes. Of course, we are not always sure of that, but we generally classify as incendiary a fire where the evidence points to its having been set, even if we do not know who set it.

Mr. JONES. What do you call that last item?

Mr. GRAVES. That is a miscellaneous item of a number of causes for which the complete classification has not come in. Our greatest difficulty, outside of the lightning, was the careless fires, particularly

smoking. It is not so much the camp fire; we are getting the camper pretty well educated about leaving his camp fire, but it is the smoker who drops a cigarette while fishing or passing through the woods.

Mr. JONES. Have you had any reports of the action of the sun on bottles and glass?

Mr. GRAVES. No, sir. I do not know of any bottle fires this year, sir.

Mr. JONES. I know of some. [Laughter.]

Mr. RAINY. There will be very few in the future. [Laughter.]

Mr. GRAVES. The losses of this year were very serious.

The CHAIRMAN. Have you an estimate of the losses?

Mr. GRAVES. Yes, sir. These estimates necessarily are preliminary, because the final checking on the ground has not been completed for such a large number of fires as we have had. I estimate, however, that nearly 2,000,000 acres were burned over this year. That is in contrast to about 700,000 acres last year and nearly 1,000,000 acres in 1917. Those are the three dry years that have culminated in the drought of the past season. Our worst season previously was in 1910, when more than 4,000,000 acres were burned. The damage was also very great. Our preliminary estimates are that approximately \$4,600,000 worth of timber was killed.

Mr. JONES. On what price did you base that; on the stumpage price?

Mr. GRAVES. We based that on our average stumpage price.

Mr. JACOWAY. What is that?

Mr. JONES. It is different, depending on different localities, is it not?

Mr. GRAVES. The field probably ranges from 50 cents for some remote timber up to \$2.50 and \$3 for the more accessible timber.

Mr. JONES. And depending on the character of the timber?

Mr. GRAVES. Depending on the character of the timber. That is probably a larger estimate than would be placed on the timber by a private owner. Some of this timber would not have been owned anyway by private individuals, because it is too remote. It nevertheless has a very real value to the public as a reserve supply.

Mr. JONES. I think, even if it was 2,000 miles from the railroad, it would be worth 50 cents as an investment proposition.

Mr. GRAVES. I have estimated, also, that the value of the young trees, the young reproduction, is approximately \$2,000,000.

Mr. JONES. This \$4,600,000 is for mature timber?

Mr. GRAVES. For trees that are of merchantable size.

Mr. JONES. Do you do anything after these fires to try to get a salvage out of it?

Mr. GRAVES. Yes, sir; whenever there is any possibility of it.

Mr. JONES. You can go into the hardwood tracts for three or four years after a fire and get salvage, can you not?

Mr. GRAVES. In 1910 we got a great deal of salvage from the burned timber (that year the total damages were about \$25,000,000), but we were disappointed in a great deal of the timber which we had hoped to salvage that year because it became checked, and deteriorated rapidly; and a number of the sales of dead timber which we had made were not possible to carry through because of the rapid deterioration.

Mr. JONES. What character of timber was that?

Mr. GRAVES. The principal timber which we were able to salvage was white pine, the Idaho white pine. Our loss this year in white pine will be relatively small. Greater damage has been done to other Rocky Mountain species.

The question which I was studying last summer on the ground when the fires were burning, and have been studying since then in our post-mortem examination of what happened at each fire, was whether it was necessary to have had such extensive fires and such extensive losses. I want to present the whole situation to the committee very candidly. I would like to repeat that the principal reason for the great losses this year was the season which, without any question, was the worst that has existed since 1889.

Our organization, for the most part, functioned better than in previous years, especially the overhead. We expected difficulty and we undertook to cure defects which we had by experience seen in our own work. I have never seen such an efficient operation of our overhead organization as occurred in the peak of the fire season. In regions like the Inland Empire, during this past season, when every few minutes wires were coming in from the local officers reporting new fires and great fires, calling for more help, calling for men, for supplies, and so on, these demands were taken care of promptly, economically, and efficiently. In spite of the labor difficulties, men were obtained, although the quality of much of the labor was very unsatisfactory; but such labor as was available was obtained and obtained quickly. There was a check and scrutiny of the expenditures which I do not think could be improved upon. There was a check on the judgment of the local officers as to the number of men who would be sent into a given fire, for that would be the point where the greatest cost would come in. The fact that it was not possible to reach the fires before the critical period was passed was the cause of the great loss. That was partly, for the most part, due to the conditions which made the fires run so rapidly that in some cases, if the officer did not arrive there within one hour, the fire was already a conflagration which had to be attacked as a large fire.

Mr. VOIGT. May I interrupt you to have you state, briefly, how you check a big forest fire; what the operation is?

Mr. GRAVES. If I may sketch very briefly the organization which takes care of that, it will be clear. We have in each of our forest districts, as, for example, that which has its headquarters in Missoula, Mont., a district office with its overhead organization for fire protection. When we see that a severe fire season is coming on we organize to meet the emergency and assign an adequate number of officers to be responsible for different lines of work; as, for example, the inspection, the furnishing of supplies, the obtaining of labor, transportation, and so on. There are inspectors who go out from the headquarters to work with the local officers. On each forest unit there is a forest supervisor who is responsible for all the work on the forest and, of course, responsible for all this protective work during the bad fire season. He has with him a number of officers, according to the needs of the locality, the hazard, and so on. In the case of very severe fires, additional competent men are sent to him to take

care of the local questions of transportation, supplies, and location of camps.

We have what we call our first line of defense, consisting of look-outs, patrol men, and smoke chasers. These men watch for fires and, when one is seen, go to it at once and try to put it out. It is through these men that over 4,500 of our fires were put out under 10 acres.

There is then a second line of defense, consisting of men who are working in the woods. These are road crews, trail crews, survey crews, local residents, saw-mill crews, logging crews, and so on.

Mr. VOIGT. Do not your lookout men have stations during certain seasons of drought?

Mr. GRAVES. Our lookout men are stationed on lookout points watching for fires. They are connected with other lookout stations—

Mr. VOIGT. By telephone?

Mr. GRAVES (continuing). And with the ranger stations by telephone or by signal.

Mr. VOIGT. That is the point I wanted to bring out.

Mr. GRAVES. When they observe a fire they locate it accurately through communication by telephone with other lookout stations and by triangulation. Then they notify the ranger, indicating the character of the fire, so that he can proceed to it, or send men to it.

Mr. HUTCHINSON. Are all those people under the employ of the Government?

Mr. GRAVES. Yes, sir.

Mr. HUTCHINSON. All of them?

Mr. GRAVES. All except our second line of defense. We have a cooperative arrangement with everybody we can get hold of in the country.

Mr. HUTCHINSON. The saw-mill men?

Mr. GRAVES. They are in the second line. Of course, they are not employed by the Forest Service. Sometimes they are on private operation; sometimes they are operating under contract for Government timber. We have an arrangement with them so that they will furnish crews immediately for fighting fires just as the ranchers and others come to our assistance.

Mr. HUTCHINSON. You pay them, then?

Mr. GRAVES. We pay them for their time. The third line of defense is the temporary men whom we employ to fight the larger fires. The smaller fires are put out by our own organization or by those who are working or living in the region. In the case of the larger fires, we have to bring in labor from the outside and it is there where we had the most difficulty this past year. When a small fire starts, one or two or a few men go to it and put it out. That is simply a matter of the use of the shovel or mattocks or rakes, or whipping with brush, according to the special conditions. Most of the small fires can be put out in that way.

In the case of a large fire, one must organize for it, to attack it in a deliberate way, to hem it in, and finally to surround it and put it out. That is done in this way: Imagine, if you please, a fire which is perhaps a quarter or half a mile long, a line running over an irregular topography, running up over this slope, down through this

swale, and so on, with a very irregular front. In the main, these fires, when they become pretty serious, have a head or series of heads where the fire is running ahead through inflammable material, here and there rushing up into the crowns and in some cases sweeping in a crown fire through a body of timber.

If it is possible, the first attack is made on the flank, and we try to pinch the fire out; not striking right in front of it but working from the sides. In such cases we work close to the fire, running a fire line very close to it and gradually putting it out. If, however, the fire is running up a high slope, we know that when it reaches the top the fire, which itself carries a tremendous draft, will meet a counter draft on top of the ridge from the other side and that it will be checked at that point. We send forward men to the top to hold it before it runs down the other side. We then aim to run a series of fire trails or breaks around the fire to prevent its crossing and spreading beyond certain points. The location of those fire breaks, lines, or trails, is, of course, one which requires a good deal of judgment and can only be done well by men who are thoroughly experienced.

In a very severe fire, those breaks ordinarily consist of a swath cut through the woods about 10 to 12 feet wide, removing all of the materials, trees and brush, cutting through the logs and snags that may be lying across the path. A trail then runs in the center of the swath down to the mineral soil, about 2 or 3 feet wide. That constitutes a break, from which we can attack the fire if it is located far enough ahead to give us time to locate it.

If the fire is running at a very severe and rapid pace, as in the daytime with a high wind, of course it is impossible to back-fire from that trail because the fire would be carried right across it. But at night there is usually a lull. Sometimes we back-fire at night. We have found that more often it is better to begin very early in the morning at daybreak. The wind usually does not come up until 8 or 9 o'clock, and we have several hours in which we can run a very long back-fire without danger.

In that way, we surround the fire and, after we have surrounded it and gotten it under control, we leave a number of men on the line to prevent the fire crossing. These men gradually pinch the fire out and it is extinguished.

Of course, there is in the life of every forest fire a certain point before which you must attack it if it is to be kept from becoming a conflagration; and the whole science of fire fighting is to get to the fire with the right number of men quickly before it reaches the danger point of a conflagration. Does that make clear the method of fighting fires?

Mr. VOIGT. Yes, sir.

Mr. GRAVES. This last season, while we faced greater difficulties than ever before, I am perfectly confident that we could have put out or reached a number of the fires before this critical period if we had not been embarrassed in the matter of securing competent men to put in charge of the fire fighting. We were also greatly embarrassed by the poor quality of some of the labor which we had to use.

We depend on our forest rangers and forest guard to report the fires and to determine how many men will be needed to fight them

and what plan of attack shall be taken. Afterwards, if the fire becomes a large one, we are depending on those men and on such foremen as we can pick up to direct the fight against the fire. The judgment of these men may determine whether the fire actually costs a few hundred dollars or \$25,000 or \$30,000, and whether there is a loss of almost nothing or a loss running up perhaps to \$50,000.

We were handicapped this year because we had a crippled field force. We had lost a good many of our best field men by resignation, and we were obliged to shift men from one point to another for replacements where we had lost men. But it was impossible with present salaries to replace all the good men who resigned with experienced fire fighters. The result was that we had to depend, in many cases, on inexperienced and even green men to decide very critical questions.

Still again, in the case of the larger fires, it was literally impossible to find competent foremen in numbers sufficient to meet our situation, men who had experience and who could carry these responsibilities and get away with it.

Because of this condition, there were fires which under normal conditions, and with a normal adequate and efficient force, we could have reached before they became conflagrations. There was, therefore, a distinct loss from the standpoint of the expenditures on that account; there was a loss on account of the damage, which otherwise could have been saved, due to the excessive number of resignations and the consequent crippling of our force.

Mr. McLAUGHLIN of Michigan. How far have you been able to save the timber after a fire has passed over?

Mr. GRAVES. In some cases, where the timber is accessible, we can make sales for perhaps a third to a half of the stumpage.

Mr. McLAUGHLIN of Michigan. But the timber does not burn beyond the point where it is good for saw timber; is not that true?

Mr. GRAVES. Unfortunately, in these regions most of these severe fires are in the inaccessible places where it is impossible to salvage the timber, because it would not pay to put in the necessary improvements to take it out.

Mr. McLAUGHLIN of Michigan. You have estimated the entire loss. I presume, during the year?

Mr. GRAVES. I gave that before you came in.

Mr. McLAUGHLIN of Michigan. And you have estimated the amount of the salvage—the amount you have been able to dispose of?

Mr. GRAVES. Probably about \$400,000 would cover that.

Mr. JONES. You might explain, however, that when a tree is dead and it is killed by fire it is useless as a commercial proposition; it does not have to burn up.

Mr. McLAUGHLIN of Michigan. Is that true?

Mr. JONES. Yes.

Mr. GRAVES. In the case of some species, if you can get it in time, you can get something out of it.

Mr. JONES. If you get it before it dies.

Mr. GRAVES. If you get the white pine before it begins to check.

Mr. JONES. You can get hardwoods out for four or five years afterwards, because it takes some time for the tree to die.

Mr. McLAUGHLIN of Michigan. There is, I think, a large element of salvage if the trees can be cut and put into saw logs and into timber without delay; is not that true?

Mr. GRAVES. Yes, sir. But it has to be pretty accessible in this western country to be able to get anything out of it at all.

Mr. McLAUGHLIN of Michigan. Does it rest with you to do all that? Are you not able to sell it to others who will do it?

Mr. GRAVES. This dead timber is for sale and we undertake to sell it; but the difficulty is finding a buyer for it.

Mr. McLAUGHLIN of Michigan. Where it is inaccessible to you, ordinarily it is inaccessible and not on the market for others, I suppose?

Mr. GRAVES. It would not pay to put in the improvements to take it out.

Mr. JONES. It would pay to give it away in order to reduce the fire risk, would it not?

Mr. GRAVES. You can not give away a great deal of it. We must remember also, that every forest fire leaves in its path an immense amount of dead material and trees which blow over and become an increased menace until the new forest comes up. There were occasions this summer where the fires were so severe that, at least in the case of the smaller trees, they actually consumed the entire trees. I have seen stands of pine, about three to five inches in diameter, where almost all of the trees were consumed and nothing left but little stumps, perhaps from 6 to 12 inches high.

The difficulty in our own organization is the fact that we have been unable to hold our rangers and guards at the salaries which we have been authorized to pay them. We simply can not get and hold for \$1,100 men who have had experience in the woods and as fire fighters and who are competent to handle this big responsibility we place on them. Of course, that standard of salaries also affects what we pay and can pay for outside labor as well. The low salaries of our field force is a factor which has resulted this year in a very real embarrassment and a very direct and large financial loss to the Government.

Mr. McLAUGHLIN of Michigan. Men who are employed by you in fighting fires are sometimes injured. You have a plan of reimbursing a temporary man who is injured, but not the permanent man; is not that the case?

Mr. GRAVES. The Federal Compensation Commission provides compensation for men who are killed or injured in the performance of their duties.

Mr. McLAUGHLIN of Michigan. Does that apply to you regular men?

Mr. GRAVES. Yes, sir; to all employees, without regard to whether they are permanent or temporary.

Mr. McLAUGHLIN of Michigan. I remember an effort was made to put that in the bill at one time and failed.

Mr. GRAVES. This was provided for in the Federal compensation act of September 7, 1916.

Mr. JONES. In States where they have a compulsory compensation law is the Government compelled to insure these men in that particular State?

Mr. GRAVES. No, sir. The Federal law provides for our own employees.

Mr. JONES. Both your permanent employees and your temporary employees?

Mr. GRAVES. Yes. We had, I think, seven deaths this year, mostly resulting from men being struck by falling trees. That is the most important phase of the work which I wish to discuss in the preliminary statement, Mr. Chairman. I think the other matters will probably come out in the discussion of individual items.

The CHAIRMAN. Thank you Colonel.

(Thereupon, at 12.30 p. m., the committee took a recess until 2 o'clock p. m., but, other business intervening, further hearing of the Forest Service estimates was postponed until 10 o'clock a. m., Wednesday, December 17, 1919, at which time representatives of the organized lumber industry were scheduled to appear before the committee to present arguments in favor of increasing the appropriation for forest-products investigations.)

COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Wednesday, December 17, 1919.

FOREST SERVICE—Continued.

The committee met at 10 o'clock a. m., Hon. Gilbert N. Haugen (chairman) presiding.

(Most of the morning session was given to a hearing of representatives of the lumber industry on the forest-products item. See discussion under Forest Service item No. 244 at a later page in these hearings.)

The CHAIRMAN. You may proceed Col. Graves.

**STATEMENT OF MR. HENRY S. GRAVES, FORESTER AND CHIEF
OF THE FOREST SERVICE, DEPARTMENT OF AGRICULTURE—
Continued.**

Mr. GRAVES. Mr. Chairman, I omitted yesterday in my general statement to explain the work which we did last summer, in cooperation with the Army, in the use of the airplanes in protecting our forests. Would you like to have me make a statement on this?

The CHAIRMAN. Yes.

Mr. GRAVES. Mr. Hawley was interested in the work and, as he is here now, I will say a word about that.

The CHAIRMAN. We will be pleased to have it.

Mr. GRAVES. The use of airplanes in fire protection has been advocated for a number of years. After the armistice was signed we took up with the War Department the possibility of some cooperation in the use of airplanes in fire protection. The officers of the Army were interested in the possibilities of combining the protection of forests with the training of aviators. The idea was to combine the training of aviators with a patrol of the forests and thus accomplish a double purpose. The result of the negotiations was that some experiments were started in California. On June 1 there

were started air patrols from three different bases of the air service. These bases were Mather field, near Sacramento, where two patrols were established in the forests immediately to the eastward; at March field, near Riverside, where two patrols were established on two of the southern California forests; and at Rockwell field, with one patrol on the Cleveland Forest. The five patrols covered about 6,000,000 acres twice a day. The average round trip of each plane was about 320 miles each day.

About September we had a flash of a hard fire season in northern California, and we asked the Air Service if they could not extend their patrol to some other of the northern forests. This was done, so that by the 1st of October nearly all of the national forests in California were under a general patrol of airplanes. The State Forester of Oregon also applied to the Army for some assistance, and a patrol was established in Oregon which covered most of the forests on the west side of the Cascades in that State. This furnished a very good practical experiment of the use of airplanes in fire protection, and we were able to judge as to whether it was practical. The conclusions are pretty clear. We can not, of course, substitute air patrol for the regular systematic ground patrol that we now have. Thus, at our lookout stations, we have a continuous observation during the entire day, while an airplane passes over a given part of a forest only twice a day. On the other hand, the airplane, by moving about, can see areas which are perhaps hidden from the lookout station by an intervening hill, or can look down into some of the canyons which can not be reached by sight from the lookout stations. So they pick up a good many fires that are not observed from a regular lookout station.

In a case of several large fires, the use of airplanes proved a very great value in directing the fighting forces on the ground. Where we have a long defensive line around the fire it takes an inspector from one to three days to cover the whole area which he could examine in an airplane in a very short time.

Mr. LEE. Have they means of communicating immediately this information?

Mr. GRAVES. We have tried the wireless telephone but that did not work perfectly and needs some further experiment. In some cases aviators land and send in their word from the nearest telephone. That was unsatisfactory. They used most extensively and satisfactorily carrier pigeons. These are taken in the airplane and sent back to the bases, whence the message is sent out over the telephone to our forest officers. A trial also was made of parachutes. In southern California, where there are a good many settlements, this was successful, and I think the majority of the messages were picked up as they were dropped and promptly sent to our headquarters.

The officers of the Army are very favorable to the forest patrol because it gives an exceedingly interesting line of work for the boys who are training. Moreover, there are many new problems in flying presented in the mountain forest region.

The proposal has been made by the local officers of the Army that there be a patrol extended over the whole of the Northwest; that is, to include California, Oregon, and Washington, the Inland Empire, with a subbase as far east as Cody, Wyo. This area comprises over half the remaining standing timber in the United States.

Mr. McLAUGHLIN of Michigan. Belonging to the Government?

Mr. GRAVES. Including that owned by the Government, the States, and private individuals. The suggestion is that there be a large co-operative undertaking between the Army, the Forest Service, the States, and private owners to work out a system of patrol next year. The Secretary of Agriculture has communicated that suggestion to the Secretary of War, who has not yet replied. As soon as he does, I would like to take the matter up again with the committee.

The CHAIRMAN. Would that require an additional appropriation?

Mr. GRAVES. It would require some additional money for the Forest Service. I do not know whether the needs of the Army would be carried in the regular Army appropriation or not, or whether they would have to have some additional funds for the location of the fields, for the aviation bases, and so on. They ask us to furnish men at the various bases. One man is needed at each base to act as a liaison between the Air Service and the Forest Service. They request the Forest Service to take care of the carrier pigeons and handle various matters not pertinent to the Army appropriation. Probably the plan would involve an actual additional expenditure on the part of the Forest Service of about \$60,000. Private owners would be called on to spend in the aggregate a sum at least equal to that, the States would also cooperate to the extent of their ability, and the balance would be carried by the Army.

The CHAIRMAN. Would the private interests be called on to meet any of the other expenses?

Mr. GRAVES. They would be called on to purchase lands for landing places and to do certain things which would be difficult for the Government to undertake. They would furnish connections by telephone to points which would fall outside of the Government lands.

The CHAIRMAN. Do they contribute now toward the work that you are doing?

Mr. GRAVES. The private owners contribute their share where private and Government lands interlock. This is a part of a coordinated system for protection, covering whole States.

The CHAIRMAN. To what extent?

Mr. GRAVES. About two-thirds of the private timberlands that are within the national forests are thus brought into such a cooperative arrangement.

The CHAIRMAN. What do they contribute—money?

Mr. GRAVES. In some cases they contribute money to a cooperative fund.

The CHAIRMAN. What are they doing now?

Mr. GRAVES. There are two methods of cooperation. One is to contribute to a fund that is administered by the Forest Service. Under the other method the expenses of protecting a given area are divided among the different owners on an acreage basis.

The CHAIRMAN. But all the time that they are working in cooperation, what are they contributing?

Mr. GRAVES. They are not contributing at all for the protection of the national forests, but only for their own lands.

The CHAIRMAN. Can you state the amount contributed by private individuals for their own lands?

Mr. GRAVES. I shall have to refer to my books on that. I will include it in the record.

Mr. HUTCHINSON. That is not put in this estimate, is it?

Mr. GRAVES. No, sir.

Mr. HUTCHINSON. Do you not think it ought to be?

Mr. GRAVES. You mean regarding aircraft?

Mr. HUTCHINSON. Yes; anything that has contributed toward this service. Do you not think it ought to be put in this estimate under another head?

Mr. GRAVES. That is always shown in our fiscal reports.

Mr. HUTCHINSON. I know; but we do not know anything about it until we get the separate report.

The CHAIRMAN. Mr. Hutchinson has reference to the amount contributed in the past, which he believes should be shown in the estimate. Is that paid into the Treasury?

Mr. GRAVES. Yes. All cooperative contributions are deposited in the Treasury. We have special authority to cooperate with the private individuals under those circumstances. These contributions are placed in the Treasury to the credit of the Forest Service as a co-operative fund, which we are authorized to spend in the building of trails and for similar enterprises. In southern California, for instance—

The CHAIRMAN. Will you furnish the committee with a full statement?

Mr. GRAVES. Yes, sir.

(The statement referred to follows:)

STATEMENT OF CONTRIBUTIONS TO THE CREDIT OF THE FOREST SERVICE COOPERATIVE FUND, FISCAL YEAR 1919, FOR INVESTIGATIVE WORK AND PROTECTION, IMPROVEMENT, AND BRUSH BURNING ON THE NATIONAL FORESTS.

There was a balance of \$90,259.83 on hand July 1, 1918. During the fiscal year 1919 \$522,840.05 was received from 1,181 contributors. These contributions varied from a minimum of 11 cents to \$101.406.80. Of the amount contributed during the fiscal year 1919, \$2,491.25 was for investigative work, \$387,603.38 for improvements on the national forests, \$122,279.35 for fire protection, and \$10,466.07 for brush burning following timber-sale activities on the national forests. The amount disbursed during the fiscal year 1919 under these cooperative agreements and included in the report of Forest Service expenditures is \$360,274.25. In addition to this amount, \$586.16 was refunded to contributors. The balance carried to the fiscal year 1920 is \$252,239.47. In addition to the direct contributions, there are many local arrangements whereby timberland owners furnish their share of patrolmen for fire-prevention work in accordance with the amount of their holdings which are intermingled with Government-owned national forest land and also pay their share of fire-suppression expenses when fires occur on the intermingled lands, directly paying the salaries of their patrolmen, their share of the bills, and wages for fire suppression.

Mr. McLAUGHLIN of Michigan. In the case of patrols for fire, all patrols for fire protection necessarily would be only there a small part of the year, when fires threaten, is not that true?

Mr. GRAVES. In California, from the 1st of June until at least the middle of October. In the Northwest, perhaps from the 1st of July until the middle of September or later, according to the season. It has quite a long, dry season.

Mr. McLAUGHLIN of Michigan. It is quite a difficult proposition, involving a good deal of expense, to establish that service, which would be in operation only a short part of the year?

Mr. GRAVES. It would be in connection with regular establishments of the Army. The idea is not to build up a special branch of the

Army for this purpose, but to have the work a supplementary or subsidiary activity in connection with the regular activities, so that the increased cost would be relatively small.

Mr. McLAUGHLIN of Michigan. I can see some value in it, but some of our people might, in view of the record of the War Department and the Air Service, hesitate to have the Department of Agriculture hook up with the War Department in any activity of that kind.

The CHAIRMAN. Do you care to make a statement, Mr. Hawley?

Mr. HAWLEY. May I have a few minutes to talk on this same subject?

The CHAIRMAN. Yes; certainly. We will be pleased to hear from you, Congressman.

**STATEMENT OF HON. WILLIS C. HAWLEY, A REPRESENTATIVE
IN CONGRESS FROM THE STATE OF OREGON.**

Mr. HAWLEY. Col. Graves has stated that two stations were located in western Oregon during the last summer for air patrol of the forests. The State forester of Oregon, Mr. F. A. Elliott, in a letter dated December 3, states [reading]:

The air patrol carried on in Oregon the past season by the United States War Department was nominally under my supervision, and I made a number of trips by aeroplane over the forest areas of the State and am fully convinced that great benefit can be derived from this branch of the War Department in discovery and location of forest fires.

There has been organized in Oregon, California, Idaho, Washington, and Montana what is known as the Western Forestry Conservation Association. These men own about 25,000,000 acres of timberland. They contributed last year, in cooperation with the Forest Service and for their own expenditures, over \$800,000 for the protection of the lands from forest fires. They are very much in favor of the extension of the Air Service to protect this Northwest area. They are willing to contribute any amount the Government may think is a just proportion of the cost of the operations during the fire season.

The Government has in these Western States 80,000,000 acres of forested lands; 80 per cent in volume in stumpage of the standing timber owned by the Government is in these five Northwestern States. The value of this patrol consists of several factors. The man in the air gets a different view of the situation from the man on the ground. There are fogs in the mountains, which very frequently cut off the view of the man on the lookout and prevent his seeing any very great distance.

But the man in the air, looking directly down, sees through the fog and can discern a fire. If we have forest fires of any considerable extent, such as we have had during the past three years on account of exceptionally dry summers, smoke settles down through the forest, and especially in the valleys, and the man on the lookout can not see through that volume of smoke, looking through it horizontally; but the man looking down from the air can see the twinkling of the forest fire, or its smoke boiling up through the older layer.

Col. Graves calls attention to the failure of the lookouts to see into the narrower canyons, and the broader canyons in many in-

stances. I think he will confirm this statement, that, so far as fires set by the carelessness of hunters are concerned, they usually originate in the valleys along the streams. Fires that are set by careless hunters or that may have been set by ill-disposed persons may escape the attention of the forest lookout for a considerable time, until the fire gets to a size sufficient to send a volume of smoke aloft that will attract his attention. But the airman passing over it would detect it very speedily and could report the location of the fire.

I have a statement here from the association just named that the Government's loss last summer in Montana and Idaho alone was about 3,500,000,000 feet of standing timber, and most of that will be lost to the market. Most of the trees, if not burned too deeply, can be marketed within five years and make a fairly good quality of lumber. After that they become worm-eaten or too poor in quality to make good lumber, and are not only of no value but become a menace to the forest.

Standing in these five Northwestern States are 1,500,000,000.000 feet of timber, a very large proportion of which belongs to the Government. We have become accustomed by the war in dealing with billions of dollars. This proposition deals with one and one-half trillions of feet of timber.

Mr. JONES. What per cent?

Mr. HAWLEY. Probably about half of it. If I am wrong, Col. Graves will correct me.

Mr. McLAUGHLIN of Michigan. The Colonel said 80,000,000 acres and that private interests owned 20,000,000.

Mr. HAWLEY. In the State of Oregon, if the owners of timberlands do not form an association to protect their own lands, satisfactory to the State forester, the State levies a tax against these lands at so much per acre, based on the cost of protection, and that is put on the tax roll of each individual holder, who pays the amount with his other taxes each year. I think most of the other Western States have similar laws.

Mr. TINCER. How much an acre is that, do you know?

Mr. HAWLEY. It depends on the fire hazard. The lands are patrolled under the direction of the State forester. At the end of the year he determines how much it cost, and the owners are assessed for the cost of the protection for their own lands. It has gone as high as 30 cents an acre for protection.

There is one thing that I want to mention before it escapes my attention, and that is the value to the flyers of this kind of work. When they are engaged in war, they must properly locate certain things accurately. In time of war they have the great incentive of winning. In time of peace in flying around in the air for practice and traveling from one place to another they learn how to fly and how to handle their machines, but there is no special incentive for them to study the ground, which they would be required to do in the event of war operations. If they are detailed to engage in this work of protecting the forests from fire, however, they must study the ground in detail as they pass over it, just as they would study an enemy's field of operations, and it would be of incalculable value in the training of these young men in the power of observation and ability to observe and report accurately the things they see. It

would be of very great value to the country if we should ever engage in another war.

Mr. McLAUGHLIN of Michigan. Is there an estimate of the number of stations that would be necessary and the number of men that would be necessary for the Department of Agriculture to employ, and so on?

Mr. HAWLEY. There is an estimate in a list given here of 12 stations that would be necessary. It might be found necessary to establish some more.

Mr. LEE. That is, in your State alone?

Mr. HAWLEY. No; in the five Northwestern States. There would be two on the west side of Oregon—one in the Willamette Valley and one in the Rogue River Valley (on the west side of the Cascades), and one on the east side of the Cascades, in Oregon. We have 600,000,000,000 feet of standing timber, about half of which belongs to the National Government, on the forest reservations and the public lands. I have many letters from practical men giving their opinion of the value of this patrol. They are practical men, who are right on the ground, who have lands to protect, who have paid large taxes, and who have an enormous investment there in the form of standing timber. They are unanimously of the opinion that this air-patrol service should be inaugurated and that that would be far better than to maintain solely the ground patrol; that the two, working together, will go far to solve the problem of controlling forest fires.

Mr. McLAUGHLIN of Michigan. Will he be able to dispense with the ground patrols to any extent whatever?

Mr. HAWLEY. That I can not answer from the standpoint of the National Government; but, from the standpoint of this association, I understand they intend to maintain the ground patrols. They have large investments in telephones, the use of which they loan to the Government; they have all that the Government needs in trails and in men for the work, and they in the past have contributed an amount equal to what the Government has, or their proportionate share of the cost of protecting any area, and I think they intend to maintain their ground patrols probably as they are.

Mr. JONES. They would have to have land patrols to put out the incipient fires the airplanes would disclose to them.

Mr. HAWLEY. The airplane would locate and report the fire, to get the men on it before it does a great deal of damage. The association anticipates that the money it puts into this will be money many times returned to the owners of lumber in the saving of timber.

Mr. JACOWAY. What was the value of the stumpage destroyed this year?

Mr. HAWLEY. Probably about 40 cents a thousand for investment purposes, taking the area as a whole. Possibly more.

Mr. GRAVES. It would be over 40 cents a thousand.

Mr. HAWLEY. Suppose you call it 50 cents a thousand. It would be \$1,750,000.

Mr. TINCHER. Have the questions to which you have referred been taken up with the aviation department—this proposition as to whether it would be satisfactory to them to do the training?

Mr. HAWLEY. Yes; the Forest Service has been in touch with them, and the Army is very anxious to engage in the work, for the reason that it will give the men practical experience in studying the ground and locating objects accurately, in order to make them more expert in the line of work in which they would need to be expert in the event of war.

Mr. TINCHER. They would confine their training in that line to that locality to some extent and perform this service, and it would do away with the amount that is appropriated—would very properly come off the amount that is appropriated for conducting that training?

Mr. HAWLEY. If they trained them in this work it would not be necessary to train them somewhere else, where they would simply be flying around without rendering any public service. If they are engaged in this work, every day's work they put in would be rendering a public service.

Mr. TINCHER. Your proposition, then, is to utilize them for this purpose?

Mr. HAWLEY. Yes; for the public benefit; giving the men the training they require and at the same time make it a public benefit to the country. This association and the companies represented by it will assist in the preparation of maps for the use of the aviators; they will furnish to the War Department the maps they have, which are in great detail.

Mr. JONES. Is that the North American Timber Co. that you are speaking of?

Mr. HAWLEY. No; this is the Western Forestry Conservation Association.

The CHAIRMAN. Have you any estimate as to the cost of these 12 new stations?

Mr. HAWLEY. The suggestion is that the contribution required by the Government from the standpoint of the Forest Service should be about \$60,000.

The CHAIRMAN. Considerable land would have to be purchased, would it not?

Mr. HAWLEY. I think the association owning these vast areas of timber will cooperate with the Forest Service in finding landing places, and they will provide a great many landing places themselves. Throughout the country there are open areas where aviators could land without much trouble and without necessitating much work in preparing the ground for use as landing places.

The CHAIRMAN. They would donate that to the Government?

Mr. HAWLEY. Yes; I think at Eugene, Oreg., they have already contributed a field, and in the Rogue River Valley they will do that for the home field. I think they would provide landing fields in the forest and they will cooperate in providing others. They come forward with the fair proposition to bear their proportionate share of the expense.

Mr. TINCHER. Would not the practical way be for the Government to establish a few aviation fields with training camps in this territory? As I remember it, the House the other day made an amendment to an appropriation bill from the Military Affairs Committee cutting out a field in Ohio. The practical way for the Government now to approach the situation would be to move the aviation field

to that territory so that the men in training could render a public service.

Mr. HAWLEY. I think they would require a number of fields so that the men employed in this service could be supplied the necessary training at those fields. Doubtless there would be other fields in other parts of the country to provide for men that would not be engaged in this service at all.

Mr. McLAUGHLIN of Michigan. Do you think that there would be such cooperation between the War Department and the Department of Agriculture in these matters?

Mr. HAWLEY. There was such cooperation last summer, I have understood, in California, and I know there was in western Oregon. By reports both of the War Department and of the Forest Service and of the representatives of the local companies that were interested the Army, the Forest Service, and the others worked together harmoniously by having one purpose in view; that is, doing the best kind of work they could in the business in which they were engaged.

Mr. JACOWAY. Who administered this combination fund; Col. Graves's department?

Mr. HAWLEY. I think the War Department administered its own fund and the Forest Service its own, and the private interests cooperated with the Forest Service.

Mr. HUTCHINSON. I understood you to say that the association contributed \$800,000.

Mr. HAWLEY. They spent last year \$800,000 for the protection of their lands. That includes what they contributed in cooperation with the Forest Service.

Mr. McLAUGHLIN of Michigan. Would that include what was paid in special taxes?

Mr. HAWLEY. No; that is in addition to taxes.

Mr. HUTCHINSON. They contributed that much to the forest people?

Mr. HAWLEY. Yes.

Mr. HUTCHINSON. Did they pay that into the Treasury, or how?

Mr. HAWLEY. I regret that I can not answer that question.

Mr. GRAVES. This large sum is the aggregate of all costs to the owners for the protection of their lands. It includes some cooperative expenditures.

Mr. HUTCHINSON. I think they ought to show what they got.

Mr. McLAUGHLIN of Michigan. They do show it in the reports.

Mr. GRAVES. I will be glad to bring that out in detail.

Mr. HAWLEY. This \$800,000 is not all that is expended by private interests in the protection of the timber in the forests of the Northwest. That is the amount spent by this particular association.

Mr. HUTCHINSON. There is no duplication between two patrols in one section?

Mr. HAWLEY. No; it is cooperative service.

Mr. McLAUGHLIN of Michigan. I have curiosity to know why this telephone service is so inefficient and why it is necessary to have the pigeons. It seems to me that the telephone, if well laid out and conducted, would be the best method.

Mr. HAWLEY. The answer to that is this: A man in the air with carrier pigeons might be 50 miles from a station, but he could dispatch a carrier pigeon which would go back to its home station.

Men would be sent out from the ranger station nearest the fire to fight the fire more quickly than if the aviator went back to find the man at the lookout to whom he might telephone, which might require him to retrace a hundred miles, make him lose a part of his day's work, and keep him from extending his trip over all the territory he is supposed to cover in a day.

Mr. McLAUGHLIN of Michigan. Is there telephone communication between all these lookout stations throughout the mountains?

Mr. HAWLEY. Yes; aviators would use wireless telephones.

Mr. GRAVES. You were referring to wireless, were you not? I said that the wireless telephone had not been working out satisfactorily. Our surface telephone system works satisfactorily, but the problem is for the air pilot to reach a telephone station.

Mr. McLAUGHLIN of Michigan. You have telephones at all these lookout stations? These are all connected up by telephone?

Mr. HAWLEY. They all have telephones or signal systems, and if a pigeon is released from an airship it will go home to its station, and that station can communicate to the other stations the location of the fire.

Mr. GRAVES. Yes.

Mr. LESHER. How many men are in these airplanes?

Mr. GRAVES. Two.

Mr. HAWLEY. There is another answer to that question, Mr. McLaughlin, the question of the wireless telephone. If the aviator in passing over a station communicates or attempts to communicate by wireless telephone with the lookout, he must find a lookout in the station.

Mr. JONES. The lookout man does not leave his station, does he?

Mr. GRAVES. He was referring to the rangers. Usually that message is taken up by the ranger's wife.

Mr. JONES. The ranger would be in the field, but the lookout would be at his post?

Mr. GRAVES. Yes.

Mr. HAWLEY. I should have said rangers instead of lookouts. The lookouts are not sufficiently numerous in an area of such an enormous extent as that, comprising some 350,000 square miles. But lookouts and ranger stations are sufficiently plentiful for a man always to find one if he wants to deliver a message in a hurry.

Mr. GRAVES. There is no fundamental difficulty about reaching our forest officers in our stations by telephone. The main difficulty is to get the message quickly from the aviator after he sees the fire.

Mr. McLAUGHLIN of Michigan. To what extent have you had the pigeons so as to determine that that is the best way of communication?

Mr. GRAVES. Those were used this summer continuously, and they proved very successful.

Mr. McLAUGHLIN. You would need an everlasting lot of them. Where are you going to get them? I think in that statement you showed me, Colonel Graves, you provided for several flocks of them. How many?

Mr. GRAVES. Nine hundred and thirty pigeons. I have not heard of any suggestion that that number would be difficult to get.

The CHAIRMAN. The pigeons would have to be trained, would they not?

Mr. GRAVES. Yes, sir.

The CHAIRMAN. How long does it take to train a pigeon?

Mr. GRAVES. A comparatively short time.

The CHAIRMAN. Is that all, Mr. Hawley?

Mr. HAWLEY. Yes; unless there is some question. I request permission to insert a letter from F. A. Elliott, State Forester of Oregon

The CHAIRMAN. Thank you, Mr. Hawley.

Without objection the letter will be inserted in the record.

(The letter referred to is as follows:)

OREGON STATE BOARD OF FORESTRY,
Salem, December 18, 1919.

Hon. W. C. HAWLEY, M. C.,
Washington, D. C.

DEAR MR. HAWLEY: Complying with the request contained in your letter of the 8th instant, the following will give you a brief outline of the work of the aerial forest patrol and what I hope it will be possible to accomplish through its continuance.

Chief among the difficulties encountered in forest protection, especially in the more isolated districts of the State, has been the difficulty of getting reliable reports of fires to the ranger, guard, or patrolman in charge of the district in time for him to take effective action before the fire develops to such proportions that its control is very difficult.

The lookout system established throughout the forests of the State has been depended on heretofore to report fires. This system, however, is seriously handicapped during smoky weather. Also, under the lookout system, there is nearly always a section of country back of intervening ridges which can not be seen.

With the establishment of the aerial patrol during the past season a solution of these difficulties is in sight. The aerial patrol of the forests of Oregon, while conducted mainly along experimental lines during the 1919 season, has demonstrated beyond a doubt to those of us who have followed it closely the wonderfully beneficial results that may be expected through a continuance of the use of aircraft as an addition to the forest-protection system.

The airplane, equipped with wireless, follows a regular patrol route, established with the view of covering the largest area in the most effective manner. When a fire is discovered the observer makes note of its location, size, and any other feature having an important bearing, and immediately gets in touch with the nearest wireless station, or through message cans, with the ranger in charge of the district in which the fire is located. Knowing the approximate size of the fire and its location, the ranger can without further delay assemble men and equipment necessary for its control.

The airplane is not only effective for locating new fires, but, as was demonstrated on numerous occasions the past season, is extremely valuable in reporting progress on large fires. Experience has shown that a trained observer, after a reconnaissance from the air, can give more useful information about the character of a large fire in a heavily timbered area, than can a man on the ground. Controlled fires can be patrolled each day to see that they do not break out anew.

It is during smoky weather that the airplane patrol is much more effective than the lookout system. Neither smoke nor a difference of several thousand feet in altitude hinders the visibility as much as one would suspect. The intervening ridge which often shuts off the view of the lookout man is of no consequence to the observer in a plane since his altitude and changing position in the air give him a view of all the landscape over which he is flying.

While the area of effective visibility depends somewhat upon the atmospheric conditions and the altitude of the plane, at a height of 10,000 feet, under fair observation conditions, a very small fire may easily be detected at a distance of 30 miles.

The mechanical success of the planes is beyond question when it is considered that in flying approximately 60,000 miles during the 1919 patrol season there were but three forced landings, due to mechanical trouble, one of these resulting in the loss of one officer and his ship.

The Air Service personnel are highly enthusiastic and are eager to become efficient in this new line of work.

The peace-time policy of the War Department is to maintain an adequate flying force and to continue the work started during the late war. Since this necessitates continued practice in flying, the Air Service officials are anxious to determine the possibilities of performing a real and valuable service to the Government, State and community in conjunction with their regular prescribed training.

The tentative aerial patrol plan for 1920, as proposed by the Air Service and the interested protective agencies, embraces the States of California, Oregon, Washington, Idaho, Montana, and Wyoming. When it is considered that this patrol will cover one-half of the standing timber in the United States, and approximately 80 per cent of the merchantable timber in the national forests, and will undoubtedly be instrumental in saving vast areas from destruction by fire, at the same time furnishing such a practical line of training to the personnel of the Air Service, the question of its continuance with sufficient financial support from Congress to make it a success should be considered a forward movement in the protection and conservation of one of the principal natural resources of the nation.

I could write at great length, giving details of the past season's work and of what we hope to accomplish through the aerial patrol in the future, but, since you have Mr. Chapman's report on the resolutions of the air patrol committee of the Western Forestry and Conservation Association and also Col. Arnold's recommendations to the War Department regarding this work, anything further from me along this line would be merely a duplication.

I want to assure you, however, that all protective agencies in Oregon are solidly in favor of a continuance of the Aerial Forest Patrol, and anything you can do to insure its continuance with the proper equipment for its success will receive the full appreciation of your constituents.

Very sincerely yours,

F. A. ELLIOTT, *State Forester.*

Mr. McLAUGHLIN of Michigan. You consider that this is a necessary expense—that you can not dispense with any of the lines of work? This is in addition?

Mr. GRAVES. I do not see how we could squeeze out enough money from the present items to meet the cost incident to the air patrol. It will require an addition of \$60,000.

The CHAIRMAN. Col. Graves, it is now nearly 1 o'clock; we had probably better recess until 2.30, at which time we will hear you further.

(Thereupon, at 12.45 o'clock p. m., the committee took a recess until 2.30 o'clock p. m.)

AFTER RECESS.

The committee reconvened at 2.30 o'clock p. m., Hon. Gilbert N. Haugen (chairman) presiding.

FOREST SERVICE—Continued.

STATEMENT OF MR. HENRY S. GRAVES, FORESTER AND CHIEF OF THE FOREST SERVICE, DEPARTMENT OF AGRICULTURE—Continued.

The CHAIRMAN. Col. Graves, are you ready? There are no changes in the statutory roll, are there?

Mr. GRAVES. We are requesting to have the forest supervisors and forest rangers transferred from the statutory roll to a special lump fund.

The CHAIRMAN. We were in hopes of doing exactly the reverse.

Mr. GRAVES. I appreciate the position of the committee on that, and I would not have presented this if we were not facing a very critical situation that is giving me a great deal of apprehension. I am unable to see any other way of meeting what is a real emergency. Either it must be done in this way, by transferring the men to a lump-fund roll, or by a readjustment and increase of the salaries of these men on the statutory roll. The Secretary felt that the latter was not feasible because of the work of the Reclassification Commission. Moreover, the positions, on account of the character of the work and responsibilities, are in every sense technical and highly specialized and as such should always have remained in the lump fund like other technical places. The situation is that I have got to find some way of meeting what is really an emergency—some way of holding an efficient field organization—if we are to safeguard the public forests and otherwise redeem our responsibilities.

The CHAIRMAN. We may look for a report from the Reclassification Commission soon, I believe.

Mr. GRAVES. The forest supervisors, of course, are in the field, and the functions of the Reclassification Commission are confined to the District of Columbia.

The CHAIRMAN. When may we expect to have a report from the Reclassification Commission? Have you any report as to that, Mr. Harrison?

Mr. HARRISON. The original law required that the report of the commission be submitted by the first week of January, but recently the chairman of the commission, Senator Jones, introduced a resolution in the Senate, which has not yet been passed, asking that the time be extended to March 12. He said that the commission could not finish the work in a satisfactory way within the time prescribed.

The CHAIRMAN. I believe that we decided at the start that we would not go into the matter of salaries until we had the report from that commission.

Mr. HARRISON. The heads of the various departments decided that they would not include any salary increases in the estimates for next year in view of the fact that the Reclassification Commission is working on the problem. While the commission is confining its activities to employees in Washington, it was felt that, if Congress adopts its report, the same principles will be applied to the field services. The proposition here is to transfer some technical employees of the Forest Service to a special lump-fund roll, placing them on the same basis as other scientific and technical employees of the department. It does not involve any increase in the appropriation.

The CHAIRMAN. Why is the transfer desired?

Mr. HARRISON. I suggest that you let Mr. Graves tell you some of the difficulties he has encountered under the present arrangement.

The CHAIRMAN. This is to meet an emergency?

Mr. GRAVES. Yes. As I shall explain very candidly—

The CHAIRMAN. The question is, shall we take up these salaries, or wait and discuss them for the whole department at one time. That has been the plan on which we have been proceeding. We have not gone into the different questions as to salaries but have passed them over, as we did last year, with the thought of taking them all up later and consider them all under one head.

Mr. McLAUGHLIN of Michigan. Why do you want these scientific and technical men transferred?

Mr. HARRISON. They are scientific and technical employees in every sense of the word. The positions demand men of specialized training and experience in forestry, timber work, grazing, and other branches allied to forestry. But, Mr. McLaughlin, I suggest that you let Col. Graves explain the situation that is confronting the Forest Service in the handling of its personnel and the reasons for this suggestion. Then I shall be glad to answer any questions I can about the attitude of the department in the matter.

Mr. GRAVES. The forest supervisors and rangers are our line officers, if I may use that expression. They are men who are on the ground in charge of the forests and of the immediate business upon them. They are responsible for the actual work of protection and the successful carrying on of all the local business.

I referred yesterday to the difficulties we had had in fire protection because of the limitations of our statutory roll, that had resulted in a large loss to the Government from this cause. I have the same difficulties in other lines of business, leading already to complaints on account of the inexperience of new men who have replaced the more experienced men who have left us. The force as a whole is to-day less efficient than it was two months ago because of the loss of experienced men. It was less efficient two months ago than it was previous to that. Unless I am able to meet the practical situation confronting me—the matter of men leaving the service—our organization is going to be still less efficient six months from now. I am confident that we are not going to be able, with the present limitations of the statutory roll, to safeguard the public property and otherwise redeem our responsibilities another season.

The present roll was established in 1912 and has remained practically unchanged since then. The salary standard is so low that our experienced men are leaving, and we can not replace them at the present grades. On some forests we have had practically a complete turnover of personnel. On one forest within the last 18 months all the men, the entire personnel, has been changed, with the exception of one ranger, who is not up to our standard of efficiency. On another forest within a year we have had a change of personnel of all except two men. I have just received the resignation of the supervisor of one of the forests in southern California, and I fear that I may soon receive the resignation of the supervisor of one of the neighboring forests. Under present conditions I can not replace those men with others of the same efficiency. This process is going on throughout the field organization, a process of the melting away of the strong men upon whom we depend for the success of the public enterprise.

The positions of forest supervisor and ranger are very technical and highly specialized. It is essential that these officers have adequate technical training and experience. The supervisor must have a basic specialized training in technical forestry, in the lumber woods, in sawmills, or as an engineer, coupled with long experience in specialized forest work in the Forest Service. Ordinarily one must have served in our organization for 5 or 10 years to be competent to serve as a supervisor.

The forest supervisor has very great responsibilities, each being in charge of a great area of a million or more acres of public property. He is responsible for its protection, for the proper handling of all the current business of timber sales, use for grazing, recreation, and also for its improvement and development. The position is not merely executive; he must have a technical knowledge of forest growth, methods of reproduction, timber cruising and appraisal, and similar knowledge regarding the technical problems of grazing, building of trails, surveys of boundaries, adjustment of land claims, and so on.

The ranger, similarly, must have a training and experience to fit him for the handling of a forest district, of 100,000 to 200,000 acres in extent, under the direction of the supervisor.

Such men can not be found on the outside. They have to be selected from those having the basic technical training and experience and then become proficient by service in the Forest Service.

The present situation is that the older and strongest men are leaving and we are not, with the present salaries, able to build up the organization below with men of adequate training.

I first recommended to Secretary Houston that he permit me to present a radical readjustment of salaries so that I would be able to hold at least a considerable part of our best men, a thing that I am not doing to-day. He explained the situation which your committee faces with reference to any changes at all on the statutory rolls. I told him that if I had a lump fund of the sum total of the salaries of these officers I would find some way of making readjustments here and there to meet the changing conditions. This would enable us, at least for the present, to meet the situation. This I would undertake without requesting any increase in the total appropriation.

If we should make a readjustment of the statutory roll which would carry the salaries that should be paid for the positions and the responsibilities of the forest supervisors and rangers, it would involve a large increase of appropriation.

Under the lump-fund plan, and without an increase of appropriation, I should make certain promotions, readjusting the organization temporarily to meet the particular personnel situation as it may exist from time to time. The total number of officers would vary during the year. In some cases, one strong man would be placed in charge of two or more forests. The situation is changing so rapidly under the stress of numerous resignations that it is impossible to indicate precisely what salary grades will be necessary.

As an illustration of the emergency, take a group of southern California forests. Here I would undoubtedly have to violate what I believe to be the best principles of organization and administration. We ought to have three competent supervisors, each in charge of one of these three important forests. One has resigned, and I fear another may do so. I can not replace them, because competent and experienced men are not available for the salaries now permitted. In this case, if there were a lump fund, as requested, I would undoubtedly take the best of those three men, give him supervisory responsibilities over all three forests, and get along with poorer men in immediate charge as his subordinates.

Mr. McLAUGHLIN of Michigan. Approximately what is the area of each of these three forests that you speak of?

Mr. GRAVES. An average of about 1,000,000 acres.

Mr. LEE. For each forest?

Mr. GRAVES. Each forest.

Mr. LEE. How close are they together?

Mr. GRAVES. They are about 150 miles apart, I think.

Mr. LEE. I do not see how you could do it.

Mr. GRAVES. We would have to do it. It is the only way I can meet the present crisis. I fully believe that the loss to the Government last summer in our forest fires, due to our restricted salaries and consequent crippling of the organization, amounted to fully 20 per cent of the cost of fighting fires and of the damage by the fires. That means upward of \$2,000,000.

I am charged by Congress and by this committee with the responsibility of protecting the national forests, protecting them from damage and injury by fire. I am charged with an efficient administration of the forest business, involving very large financial values. I would not be doing my duty if I did not place before you the difficulties that I have under the present rigid and restricted system, carrying a scale of salaries established in 1912 for positions in which the responsibilities have been steadily increasing on account of the increasing demands of the business.

Mr. McLAUGHLIN of Michigan. In what respect has the demand increased?

Mr. GRAVES. I may illustrate in regard to a single line of business. This year we have had 50 per cent more transactions in timber sales than we had in 1914.

Mr. McLAUGHLIN of Michigan. Is that true, on an average, as to all the funds?

Mr. GRAVES. We have increased the number of stock on the national forests since 1914 by about 2,000,000 head. The responsibility of overseeing that work, getting a just allotment of the grazing privileges, and inspection of the work is constantly being intensified on practically all forests.

Mr. McLAUGHLIN of Michigan. Has the number of permits increased largely?

Mr. GRAVES. Yes.

Mr. McLAUGHLIN of Michigan. Has there been an increase in area to each permittee?

Mr. GRAVES. No; the number of permits has been increased by reducing the area allowed some of the larger permittees.

Mr. JONES. Do you have the lands cruised?

Mr. GRAVES. When we make a sale of the timber we make a cruise and an appraisal of the timber.

Mr. JONES. How is your cruise made; under any of the recognized systems of cruising, or is just an estimate made?

Mr. GRAVES. A regular cruise, under recognized methods.

On many of these forests the timber alone has a value of ten or fifteen millions of dollars. On one of our forests in the Northwest the value of the timber would be as high as \$30,000,000. The supervisor of that forest receives, as I recall, \$2,200 a year as the base salary. We are doing a business on some forests involving receipts of \$80,000 or \$90,000, with supervisors getting \$2,000 and \$2,200.

Mr. McLAUGHLIN of Michigan. The supervisor himself does not receive the money for the sales, does he?

Mr. GRAVES. No; but he is responsible for the administration of the entire forest, for its protection, and for all the work; he has to see that the sale is carried out properly. It is a very easy thing to make mistakes and use bad judgment. In much of this work a mistake or a failure to use good judgment may involve very great loss to the Government. We have really a gigantic business undertaking, and I feel that we should have your support in every way to secure an efficient administration of it. I fully appreciate what I am asking, and I come to you only because I feel that it is a real emergency and that this is the only way that I can meet it without asking for an increased amount of money.

Mr. McLAUGHLIN of Michigan. You have spoken of the supervisors. Will you give us something of the same information as to the others. A supervisor, you say, receives the basic salary of \$2,200. He gets the bonus?

Mr. GRAVES. Yes.

Mr. McLAUGHLIN of Michigan. Of \$240?

Mr. GRAVES. Yes.

Mr. McLAUGHLIN of Michigan. Is there any allowance to him in any way? Does he get a house?

Mr. GRAVES. No, sir.

Mr. McLAUGHLIN of Michigan. Does he get a machine or animals for purposes of travel?

Mr. GRAVES. No, sir.

Mr. McLAUGHLIN of Michigan. Is he paid for his traveling expenses in any way?

Mr. GRAVES. He is paid for his traveling expenses, like every other Government official traveling away from his station.

Mr. McLAUGHLIN of Michigan. Is he paid a per diem or his actual expenses?

Mr. GRAVES. At the present time I have the entire Forest Service on actual expenses.

Mr. McLAUGHLIN of Michigan. Then, there is no remuneration or allowance of any kind to him that would be, in effect, an additional compensation?

Mr. GRAVES. No, sir.

Mr. McLAUGHLIN of Michigan. Now, as to the others, some of them are provided with living quarters, are they not?

Mr. GRAVES. The rangers who are located away in the forests, away from towns, where there are no houses available for rent, are given quarters. We build a house for them.

Mr. McLAUGHLIN of Michigan. Is anything contributed in any way toward their living expenses?

Mr. GRAVES. No, sir. They are required to furnish their own means of transportation. They are required to own from one to three horses. They have to purchase them personally at their own expense. But we furnish the forage for those horses which are used exclusively for Government work.

Mr. McLAUGHLIN of Michigan. Are they bought and paid for out of their own money or are they supplied?

Mr. GRAVES. They are bought out of their own money.

Mr. McLAUGHLIN of Michigan. Have they any extra remuneration or anything of that kind?

Mr. GRAVES. They receive nothing whatsoever except the forage for feeding those horses.

Mr. JONES. Is it your conclusion that the statutory roll leads to inefficiency?

Mr. GRAVES. There is not the slightest question but that this statutory roll has broken down. It has led to inefficiency already. I can show you where it has led to definite and costly inefficiency in various instances in the Forest Service. I have failed to get the best efficiency because of it.

Mr. JONES. From what date has this been observed—that you are unable to supply these positions with men at the salaries fixed on the statutory roll?

Mr. GRAVES. My difficulty began about 1913, became intense along about 1914 and 1915, and during the war I was able to hold the men on the job absolutely only by appeal to their patriotism.

Mr. JONES. Then the question of the high cost of living is what brought it about in these instances, as well as with everybody else?

Mr. GRAVES. It has, in a measure, been the cause of it; but, quite regardless of the high cost of living, the whole standard of these salaries, which was established eight years ago, is too low compared with salaries for work of the same responsibility, both inside and outside the Government service.

Mr. JONES. Going back to my question, were you able at any time to get competent men at those salaries?

Mr. GRAVES. Yes, formerly; and up until within a year or two I was able to hold the bulk of the organization largely through appeal to loyalty and patriotism, and through the hope that I might secure a just basis of compensation. I would not, even if there had not been the recent high cost of living, have been able to retain them in the long run, because the standard is too low for the responsibilities of the positions. This applies not only to the supervisors, but with equal force to the rangers. The latter are getting a base salary of \$1,100 to \$1,200, which is too low considering the responsibilities placed upon them.

Mr. JONES. How do these salaries compare with salaries paid for similar positions in the State of New York, for instance, where they have them?

Mr. GRAVES. I am not sure that I recall just what the salaries of the State of New York are. The respective conditions are hard to compare, for they do not carry precisely similar responsibilities.

Mr. JONES. The State of New York owns about 1,600,000 acres in timberland, as I recall it.

Mr. GRAVES. I think Mr. Pettis, the State Forester, who has charge of the State forests, receives \$4,000 or \$5,000 a year.

Mr. JONES. I do not have reference to him. I have reference to the men out in the field—the rangers, fire wardens, and your forest protectors, out in the forest. Mr. Pettis lives in Albany. He does not get out into the field.

Mr. GRAVES. The district rangers in New York correspond to our district rangers, though they do not carry anything like the responsibilities carried by our men. The work in New York is almost wholly a protective job.

Mr. JONES. Yes.

Mr. GRAVES. The district rangers in New York receive \$1,800 and are furnished a car or other means of transportation. Our district rangers receive an average base salary of less than \$1,200 and have to furnish their own horses or car.

Mr. JONES. Then your men out in the field do work similar to what the men in the office at Albany do—Mr. Pettis and others?

Mr. GRAVES. Mr. Pettis's work corresponds, in part, to that of a forest supervisor and, in part, to a district forester's work. His work involves planning, protection, planting, and developing. As yet in New York there are no transactions which involve the sale of timber. As you know, they do not allow any cutting in the Adirondacks.

Mr. JONES. No.

Mr. McLAUGHLIN of Michigan. You have spoken of the supervisors and rangers and other men. Are any of these other classes of men supplied with homes?

Mr. GRAVES. No. You mean men like the guards or the other members of the Forest Service?

Mr. McLAUGHLIN of Michigan. Take it right down through these lines. There are the supervisors and the rangers; you have spoken of them.

Mr. GRAVES. There are a few stations remote from any town where quarters are furnished to the supervisor; not as a perquisite, however, but because we have to provide some place for him to live. We require him to live at the particular station, and we have to furnish him a place to live if it is not feasible for him to rent. Of course, any forest officer who is detailed to the forest for work at a point where there is an available ranger station would make his headquarters there.

Mr. McLAUGHLIN of Michigan. You have a large number of these men under general titles. You spoke of the supervisor. As you have just stated, he supplies his own house.

Mr. GRAVES. Yes.

Mr. McLAUGHLIN of Michigan. Do rangers have houses supplied by the Government?

Mr. GRAVES. A portion of them.

Mr. McLAUGHLIN of Michigan. How about the others?

Mr. GRAVES. None of them have.

The CHAIRMAN. Where do the forest guards live?

Mr. GRAVES. The guards are temporary employees. When on duty in the forest they make their headquarters at a ranger station or in camp. That is not furnishing them a home.

Mr. McLAUGHLIN of Michigan. It is a place for them to live and eat at the expense of the Government while they are doing the work, is it not?

Mr. GRAVES. Yes. If they were not there, they would be in camp, living in a Government tent.

Mr. McLAUGHLIN of Michigan. When they are living in a Government tent, are they supplied with their rations?

Mr. GRAVES. Oh, yes; while they are in the field, away from their station, just as though—

Mr. McLAUGHLIN of Michigan. How much time is covered by that?

Mr. GRAVES. Most of the field officers are out during practically the whole of the field season, which, of course, on the Pacific coast is a long one.

Mr. McLAUGHLIN of Michigan. During that entire time their living expenses are all furnished to them?

Mr. GRAVES. Yes; just like the members of a survey crew in the Geological Survey, or any other field crew, doing field work. While they are away from their station, their expenses are paid.

Mr. McLAUGHLIN of Michigan. As to a large number of them, that is practically all the time, then?

Mr. GRAVES. No; because, if a man is stationed at one point permanently, he does not receive his expenses. That is all covered in the fiscal regulations of the department. He has got to be on travel status in order to receive his expenses.

Mr. McLAUGHLIN of Michigan. But a large number of them are not permanently located; they are so employed as to receive this pay for expenses, or their living expenses, so that they do not have any headquarters; they live at the expense of the Government?

Mr. GRAVES. That is while they are in the field; yes.

Mr. McLAUGHLIN of Michigan. You say there are a large number of them who are in the field practically all the time?

Mr. GRAVES. Hardly all the time; through most of the field season; and then they are out at different times in other parts of the year.

Mr. RUBEY. What is the length of the field season?

Mr. GRAVES. In California it would be from June until about the middle of October. Ordinarily a field party doing work like timber cruising will start out from about the middle of June to July 1, and they might finish up the survey work by the 1st of October; some of them would be out longer than that.

Mr. RUBEY. What are these men doing at this season of the year?

Mr. GRAVES. Many of the men are at their headquarters during the winter working on the results of their summer work. If they have been on timber appraisals, they are working up those appraisals preparatory to the final negotiations for the sale of the timber; and if other work is necessary, they go into the field again. Of course, in case of men like scalers, who have their permanent headquarters at the sawmill or in connection with a logging operation, that is their permanent headquarters, and they pay their own expenses. They are located there permanently.

Mr. McLAUGHLIN of Michigan. A large number of these men, then, are in the field only three or four months, and then some of them have to make up a record of what they have done; but, ordinarily, that would not take very long. There must be several months in the year when many of them have nothing to do.

Mr. GRAVES. No, sir; that is not true. Our work is so diversified that there is a pressure of work during all the year. Take the case of our grazing examiners; they may be in the field in the summer for three or even four months, getting their field data by a survey and plan of grazing regulation on specific forests. They will be engaged for perhaps two months in working up their data, or it may take them considerably longer than that, where maps are involved. Then comes the allotments of the grazing for the year, involving the

assistance of these men to the forest supervisor. Then by spring there may be further work in preparation for the season's work, special inspection trips, etc.

Mr. McLAUGHLIN of Michigan. I notice you say there may be these different kinds of work. Ordinarily, is there that kind of work? I was trying to find out what these men do.

Mr. GRAVES. Yes, sir; there is. I have not been able to find any slack time for our examiners and scalers and others such as you suggest.

Mr. McLAUGHLIN of Michigan. I was trying to find out about these salaries. If the sum is paid to a man who works only a part of the time, or if it is paid to a man who has a home furnished to him, or if it is paid to a man who has his living expenses paid a large part of the year, it would be interesting to know that, as bearing on the question of whether or not his salary is sufficient.

Mr. GRAVES. Of course, in the matter of the traveling expenses while he is in the field, the condition is somewhat different in the Forest Service from what it was 10 years ago, or even what it was when this statutory roll was put into effect. We had a very much larger number of unmarried men in the service then than we have to-day. More men now have homes, and when they go into the field their expenses are just the same as when they are at home, so that there is no saving to them by having their expenses paid.

Mr. McLAUGHLIN of Michigan. That is in a large measure true, I suppose.

Mr. GRAVES. They are at work all the time.

Mr. CANDLER. Men like these supervisors are overworked, if anything; they are busy all of the year; there are some activities going on all of the year?

Mr. GRAVES. In the winter there is preparation for the field season, negotiations for timber, grazing, special uses, and a multitude of tasks connected with the handling of the forest business. The forest supervisor's office is a busy one. I have been personally on about 110 different forests and, I know the way the business presses. I drop into the offices and see that the business is increasing. The work that the men have to do allows no let up.

Mr. CANDLER. It requires their attention all the time. If they have a few days when they can get off, they have to be ready to respond when they are needed, all the time.

Mr. McLAUGHLIN of Michigan. You have men called lookouts watching for fires. There is danger of fires in only a small part of the year. What do those men do at other times?

Mr. GRAVES. Those men are employed during only a part of the year. They are not year-long men.

Mr. McLAUGHLIN of Michigan. They are paid only for the actual time they put in?

Mr. GRAVES. Yes.

Mr. McLAUGHLIN of Michigan. What are they called?

Mr. GRAVES. Lookouts, we call them.

Mr. McLAUGHLIN of Michigan. Are they included in the first part of this item?

Mr. GRAVES. No; they are forest guards. The forest guards are all short-term men. The statutory roll of the last bill called for an authorization for 100 forest guards at \$1,100 each for periods not exceeding six months and 40 forest guards at \$1,100 each for periods not exceeding three months. I have found that this is an inelastic and cumbersome arrangement, because frequently I want to employ one man for four months, or employ another for two months, or another for five months. The paper work alone connected with the appointments and shifts and changes is very great. It is costly, aside from its inconvenience.

Mr. McLAUGHLIN of Michigan. Here is this item: "One hundred forest guards at \$1,100 each for periods not exceeding six months in the aggregate." Does that mean at the rate of \$1,100 for the year?

Mr. GRAVES. Yes, sir.

Mr. McLAUGHLIN of Michigan. That would be \$550 for the six months. Is that what you pay them?

Mr. GRAVES. Yes.

Mr. HARRISON. That is the way the appropriation is made, Mr. McLaughlin.

Mr. McLAUGHLIN of Michigan. Then you have 40 forest guards at \$1,100 each for periods not exceeding three months. They would be paid at that rate for three months?

Mr. GRAVES. At the rate of \$1,100; yes.

Mr. LESHER. Do they get any bonus?

Mr. GRAVES. After they have been with us a certain length of time the forest rangers who qualify get a bonus.

Mr. LESHER. After six months in the forest?

Mr. GRAVES. Yes.

Mr. RUBEY. I notice you have here 1,030 rangers, 11 of them getting \$1,500 a year, 23 at \$1,400 a year, 78 at \$1,300 a year, 288 at \$1,200 a year, and 630 getting \$1,100 a year. I wish you would explain just what these rangers do—whether they are employed the entire year; what their work will be in the summer season, when you are expecting fires, and what it will be in the winter season, when you are not expecting fires.

Mr. GRAVES. The ranger is a year-long employee. He has charge of a ranger district, or a portion of one of a national forest. The ranger district averages about 100,000 acres in extent, and in some forests runs as high as 300,000 acres.

Mr. RUBEY. You have more than one ranger over each one of those districts.

Mr. GRAVES. No, sir; one ranger is in charge of the district. During the summer he is furnished additional temporary assistants, such as these lookouts, patrolmen, smoke chasers, or temporary labor, which may be employed for various purposes. He is responsible for all the activities in his district, taking care of the business as well as protecting the area which is under his charge. He has to plan out the work of protection and carry out under the direction of the supervisor a large number of activities. He is authorized to make small timber sales.

If a settler needs a little wood or a few logs, or if a portable mill wants to buy a small additional lot of timber, he is authorized to make such sales. In case of the larger sales which the supervisor

or higher officers are authorized to make, the ranger participates in many ways, both in the preliminary work and in their supervision and inspection. In many sales he must see that the terms of the contract are carried out, that the operators are making a proper disposition of their slashings in accordance with the contract, and so on. He keeps track of the stock which may be grazed in the district, inspecting the work, seeing that there is not an excessive number of the stock in trespass, seeing that the stock is properly handled and properly distributed during different parts of the season so as not to congregate in one place and overgraze at certain parts, and so on. He is responsible for the carrying out of the protective system, directing the work of the temporary employees under him. There is often more or less trail building and other important improvement work to be done in the district which the ranger supervises.

In case of fires he directs the fire fighting in his district. In many cases, in a severe fire season like the past summer, this may involve very responsible exercise of judgment. In the Flathead National Forest, in Montana, for instance, one ranger had about 250,000 acres under him. The fires were starting up at many points, and at one time I presume that there were a dozen or more fires burning. He was able to secure only two competent guards. The others were men such as could be picked up in the general labor market, and usually not experienced in fire fighting. The ranger was terribly handicapped on that account. He had, in other words, to take charge of all this fire fighting under such conditions in addition to any other activities that were pressing in his district.

The preparation for the work, the planning of it, the checking up of fire plans, the riding of the range where there is grazing at the close of the season to see what the effect of the grazing has been for the past season, the planning out of the work of allotments to different permittees of the grazing for the following year, the negotiation for timber sales and special uses, and planning of improvements are among the winter tasks.

It sometimes happens in areas in the north woods or in the mountains, which get snowed up in the winter, that the ranger has not upon his immediate district very much to do. He is then placed upon some special work, like the administration of sales or scaling. In other words, when the activities on his immediate district are not sufficient to keep him employed during the entire winter he is transferred to some other point where there are other activities and where we need men.

Mr. RUBEY. The point that I wanted to bring out is that he is employed all the time, the year around?

Mr. GRAVES. Yes.

Mr. RUBEY. And I judge from your explanation that he has plenty to do.

Mr. GRAVES. I have always felt that, as most of our forest work is far away, it would be an exceedingly illuminating thing if some member of this committee, if not the whole committee, could visit some of the national forests and personally see the actual activities on the ground.

Mr. RUBEY. Our Naval Affairs Committee and various other committees visit places of interest in their particular work, and I have

always felt that the Agricultural Committee might very well take a junket out into the Northwest and look over the forest situation.

Mr. GRAVES. I feel that it would not be a junket. I think it would be a very desirable thing as a matter of inspection of the work of the department.

Mr. RUBEY. We certainly could learn a whole lot about it.

Mr. CANDLER. I have believed for many years that we ought to do that. We do not know anything about it, and that is the only way that we can get information.

The CHAIRMAN. You speak about some of your men leaving you. What pay do they get?

Mr. GRAVES. Much more than the Government is paying. They go usually into some work allied with forestry. Many of our men go in with lumber companies in responsible positions. Many of the men in the Central West and Southwest go in with stock companies.

The CHAIRMAN. That is, they go in with them as partners?

Mr. GRAVES. No; as managers. That is what they are now. The supervisors of forests and ranger districts are managers. Then frequently they go into other miscellaneous positions. Our officers become known as competent men, and they are taken over as partners or managers or assistants in various lines of business.

The CHAIRMAN. At what salaries?

Mr. GRAVES. I have the exact figures here.

The CHAIRMAN. How much more do they get outside?

Mr. GRAVES. They get all the way from \$800 to \$2,500 more than they are getting now. I have a long list which gives exact figures. The average increase of supervisors who have resigned has been \$1,800; the average increase for rangers has been \$880. This is so far as I have records of the pay of the new positions.

The CHAIRMAN. In order to meet the emergency, what would you be required to pay?

Mr. GRAVES. I would promote supervisors here and there and pay some of them as high as \$3,000. It would be necessary to go above that at the present time only in one or two cases.

The CHAIRMAN. According to their efficiency?

Mr. GRAVES. According to their efficiency and the responsibilities of their work. Others I would pay \$2,800, \$2,600, or \$2,400. I would not be able to go very far, because the total amount of money is limited, and I could not reduce the number of men very greatly. The advantage would be, rather, in having an elastic system, whereby through salary adjustments I could meet the situation as I find it from month to month.

The CHAIRMAN. Without any increase in the appropriation?

Mr. GRAVES. Yes; without any increase in the appropriation.

The CHAIRMAN. How about these figures—\$1,673,540?

Mr. GRAVES. That \$1,673,540 is the aggregate in this group of men, Mr. Chairman, that we are asking to have transferred to the lump fund. That is a decrease from the statutory roll. It is merely a matter of bookkeeping.

The CHAIRMAN. It is taking from one roll and adding to another?

Mr. GRAVES. Yes.

The CHAIRMAN. I understand it, but I wanted to get it clear in the record. Is there any intention of increasing the fees for grazing permits?

Mr. GRAVES. We have increased the fees in the last two years.

The CHAIRMAN. What are they at the present time for cattle, for instance?

Mr. GRAVES. Cattle fees run from a rate of 80 cents to a \$1.50 per annum. May I ask Mr. Potter, who is in charge of grazing, to answer those questions?

The CHAIRMAN. Yes; I would like to get this all together so that we can refer to it in one place in the record.

Mr. GRAVES. Mr. Potter, will you answer these questions on grazing?

Mr. HARRISON. Would you not rather defer that, Mr. Chairman, until you get to the grazing items?

The CHAIRMAN. We have been dealing with grazing. I would like to get it all in one place.

Mr. HARRISON. It has only been incidentally referred to here.

The CHAIRMAN. If you prefer to do it that way, very well.

Mr. LEE. Why not wait until you get to your appropriation for that? Otherwise, we will be going over it several times.

Mr. McLAUGHLIN of Michigan. After all is said and done, this is a proposition to place \$1,600,000 in the hands of the bureau to pay such salaries as the chief may wish to pay, and the salaries can be put at any account; and Congress gives up all control over the question of salaries so far as that \$1,600,000 goes? You transfer a man to the lump sum and put his salary at what you please, and then you can transfer him back to the statutory roll at the increased salary. Could not that be done?

Mr. GRAVES. No, sir.

Mr. McLAUGHLIN of Michigan. Why?

Mr. GRAVES. Men are not transferred from the statutory roll to the lump-fund roll unless there is some change of duties that very distinctly changes their responsibilities.

Mr. McLAUGHLIN of Michigan. You propose to transfer a great many men from the statutory roll to the lump fund without any change of duties, do you not? Their duties are to be the same, are they not? It is for the purpose of enabling you to pay larger salaries if you find it necessary to do so, as I understand it.

Mr. GRAVES. Yes, sir.

Mr. McLAUGHLIN of Michigan. Then, are you entirely right in saying that there can not be a transfer from the lump-fund roll to the statutory roll without a change of duties?

Mr. GRAVES. I am speaking of the system as it exists to-day. I am asking in these estimates to have these men put on the lump-fund roll; but as the appropriation bill stands to-day, we do not transfer men from the statutory roll to the lump-fund roll as an administrative matter unless there is a definite increase of responsibilities.

Mr. McLAUGHLIN of Michigan. There is no authority of law asked for here, is there? It is simply to decrease the statutory roll and increase the lump fund.

Mr. GRAVES. These men are definitely taken off of the statutory roll and placed on a special lump fund.

Mr. McLAUGHLIN of Michigan. Then, they can go back to the statutory roll without any law, can they not, and they will go back to the statutory roll, if you wish to transfer them, at the salaries that you fix for them on the lump-fund roll?

Mr. GRAVES. If they were not left permanently on the lump fund with other technical employees, and the committee wanted to put them all on the statutory roll, that would require consideration at a subsequent time.

Mr. McLAUGHLIN of Michigan. But there are often transfers from the lump-fund roll to the statutory roll, and in each case the salary provided is the salary that was carried on the lump-fund roll. Now, if you get these men onto the lump-fund roll, you can give them any salary you please, and then you can transfer them back to the statutory roll with that same salary, and that salary becomes permanent?

Mr. CANDLER. That has to be approved by Congress. They control it.

Mr. JONES. They can put them on the statutory roll, but we have to approve that in the bill.

Mr. McLAUGHLIN of Michigan. In this Book of Estimates a whole lot of them, hundreds of them, are transferred. That is one way to increase the salary of a man who is on the statutory roll. If he is getting \$1,000 on the statutory roll, his salary can not be increased, but he can be transferred to the lump-fund roll, and then his salary can be raised to \$2,000, and be transferred back to the statutory roll and carried there at \$2,000.

Mr. GRAVES. But that is only done where there is a new place created.

Mr. McLAUGHLIN of Michigan. Is not that statement correct? Have you any objections to the correctness of my statement about that?

Mr. GRAVES. There must be either a new place created or a vacancy. Employees are not transferred from the statutory roll to the lump-fund roll merely in order to permit their salaries to be raised.

Mr. McLAUGHLIN of Michigan. Pardon me, but did you not state that very thing? Did you not say in the beginning that you wanted to do that for this very purpose?

Mr. RUBEY. He is asking permission to do that.

Mr. McLAUGHLIN of Michigan. I am speaking of the effect of it.

Mr. GRAVES. Oh, yes; certainly. I was speaking of such transfers as may ordinarily be made administratively as between different rolls. I am perfectly frank about the purpose of the request I am making to have Congress transfer the forest supervisors and rangers to the lump-fund roll. This request is made because I have an emergency that I have got to meet and can not meet, as I see it, in any other way. The conditions are changing day by day. The situation is quite different to-day from what it was three weeks ago, and I happen to know enough about the situation to know that it is going to be very much changed within another six months—that a large number of our strongest field men can not and do not intend to remain much longer if we can not grant them relief.

Mr. HUTCHINSON. This does not say whether you shall have 500 or 1,000 men. You can cut your force down to 500 men and pay them the same amount of money that you paid the 1,000 men?

Mr. GRAVES. This is a practical question. I am responsible for doing a certain volume of work. I can not cut the force indefinitely. This would give us an elastic system and would enable us to expend

the total available money most advantageously in accordance with the special conditions prevailing at a given time.

Mr. HUTCHINSON. Do you not think some men are cheaper at \$2,000 than other men are at \$1,000?

Mr. GRAVES. I do not think there is the slightest question but that it is economy to pay enough to get men who are efficient. It is certainly not economy for the Government to have an inefficient man because the pay is too low.

Mr. HUTCHINSON. Could you not reduce your forces and pay more wages to your men?

Mr. GRAVES. I would have to make some reduction. I doubt whether that would be a desirable thing, permanently. My feeling is that the Reclassification Commission probably within two years will get to the field forces; but, pending that time, I have got to continue to do this work. I can not stop it as you could close a laboratory. In case of a good deal of scientific work one can suspend entirely for a time if he can not get men to do the work, and there would be no very striking and immediate public injury. But fires are going to burn in the forests next summer, and I have got to prevent them. There are men asking to buy timber to meet industrial demands. Thousands of people are using the forests and their resources, and their demands must be met efficiently or there will be a great public loss. The demand is there. The work can not wait. I can not do it with inefficient men.

Mr. McLAUGHLIN of Michigan. You are in a position to know what occurs each year when this bill comes up?

Mr. GRAVES. Yes, sir.

Mr. McLAUGHLIN of Michigan. There is very severe criticism each year when the bill comes up, because the lump-fund appropriations are so large.

Mr. GRAVES. Yes, sir.

Mr. McLAUGHLIN of Michigan. Very severe criticism.

Mr. GRAVES. Still we have more people on the statutory roll in the Department of Agriculture than there are in any other department of the Government, with the exception of the Treasury Department, and they have a larger force than any other department of the Government.

Mr. CANDLER. The Agricultural Department has put a larger percentage of its people on the statutory roll than any other.

Mr. HARRISON. That is true, Mr. McLaughlin.

Mr. CANDLER. We are subjected to criticism, but we are not liable to criticism, because really we have been more efficient in putting people on the statutory roll than any other department of the Government except the Treasury Department. Taking the comparative number of employees in the Agricultural Department, and in the Treasury Department, there is proportionately a greater number on the statutory roll in the Agricultural Department than there is in the Treasury Department.

Mr. McLAUGHLIN of Michigan. The reason for the criticism, if there is reason for it, is that the Congress has no control over the use of the lump-fund appropriations, and that any salaries can be paid that the chief of bureau or the head of the department chooses to pay.

Mr. HARRISON. That is, within the limitation of \$4,500.

Mr. McLAUGHLIN of Michigan. Yes; within the limitation of \$4,500. Congress does not want to extend the lump-fund appropriation because of its influence over the control of salaries.

Mr. JONES. I wonder how many of the Members of Congress are capable of judging how much a man ought to get.

Mr. McLAUGHLIN of Michigan. That is true; but we are just suggesting that this would be piling up a lot of trouble for us in the House.

Mr. GRAVES. I appreciate that, and I came to you only because I am facing a crisis, a real emergency.

Mr. CANDLER. Frequently on the floor of the House when there is a salary that is proposed to be paid to some officer, somebody gets up and says that it is too much and makes a point against the increase, and possibly the Member who does that does not know anything about the duties that that man performs and does not know whether he is paid too much or too little. It is simply a lick in the dark.

Mr. ANDERSON. Yes; but there is no law that requires a Member of Congress to know anything. [Laughter.]

Mr. CANDLER. I did not catch the gentleman's remark.

Mr. McLAUGHLIN of Michigan. That was not directed against you, Judge.

Mr. GRAVES. I have tried to get along with this present statutory roll since it was established in 1912, and I can not maintain an efficient organization under it. This year I am not going to be able to get away with it and redeem my responsibilities to Congress and to the public. It can not be done.

The CHAIRMAN. It is difficult for Congress to determine salaries; but, after all, it is not so difficult to determine them after hearing the department. We should rely, of course, upon the recommendations and suggestions made by the department. It seems to me that the department could just as well suggest when the appropriation is fixed as a year afterwards what the salaries should be. It seems you ought to be in position to say, "Next year I propose to employ a certain number of foresters," or whatever they may be. "It is necessary for me to pay salaries of \$2,000 or \$1,500 or \$1,000," or whatever they may be; lay your cards on the table, and then let Congress determine whether or not they will approve of the suggestions made.

Mr. GRAVES. I can do that, but it involves a largely increased appropriation.

The CHAIRMAN. Would it not be the better way?

Mr. GRAVES. There would be involved a large increase in the appropriation.

The CHAIRMAN. If it has to be done, it can be submitted to Congress.

Mr. GRAVES. I have such a list.

The CHAIRMAN. You say you have a list?

Mr. GRAVES. Yes.

Mr. CANDLER. That increases the amount of the appropriation?

Mr. GRAVES. Yes; fully \$170,000.

Mr. JONES. Could not the committee follow the suggestion that has been made and decrease the number of men? That would be following out your suggestion.

Mr. GRAVES. I could not determine at this time what that decrease should be. This situation changes every time one of our old employees

leaves an important position. It is impossible for me to draw a rigid line now to meet that situation. I am afraid that it might be pretty embarrassing, as an effort to outline a salary roll for 18 months on the basis of the unstable conditions to-day would not be practical.

The CHAIRMAN. Is it not possible for you to estimate with some degree of certainty as to a certain number?

Mr. GRAVES. Yes.

The CHAIRMAN. For instance, if you should need, say, 300 men, you could estimate as to half, or as to 200. Then 200 could be placed on the statutory roll, and in addition a lump sum could be supplied, and left to your discretion as to the remaining 100.

Mr. GRAVES. You mean to put a portion of the men on the statutory roll?

The CHAIRMAN. I realize that you want discretion in the matter; but these lump-sum rolls have been criticized so much that I would hesitate in transferring a million and a half dollars or more from the statutory roll to the lump sum at this time—or at any other time.

Mr. GRAVES. Would it be of any assistance to have a limitation on top, above which no man should be paid?

The CHAIRMAN. Take this table, for instance. Here is one supervisor at \$3,040. Do you expect to have to change that?

Mr. GRAVES. That is what one man is now getting.

The CHAIRMAN. Do you have to increase the pay for that position?

Mr. GRAVES. No. Because—

The CHAIRMAN. Why not leave that as it is? Here is one forest supervisor at \$2,700. Is there any question about that place?

Mr. GRAVES. I have already indicated that I would need to place a number of men as high as \$3,000.

The CHAIRMAN. Then we get down here, and you pay 49 supervisors \$2,000 each. We might put 40 of them on the statutory roll, and also make an appropriation outside of that so that you could take care of the others on the lump sum.

Mr. GRAVES. Do you mean to make a sort of a classification and grouping of the men?

The CHAIRMAN. Of those that you have fixed and are satisfied in your own mind that you will not change?

Mr. GRAVES. That would be impossible at the present scale of salaries.

The CHAIRMAN. Then we will confine ourselves to these 49. How many of these 49 forest supervisors do you propose to increase in salary?

Mr. GRAVES. I can not tell you now how many would probably have to be increased during the year. I would not increase them all at once.

The CHAIRMAN. About how many?

Mr. GRAVES. I could not outline that in advance. It would involve the creation of a new statutory roll. If this system is necessary, the present situation can be met only by formal readjustments that will involve a large increase.

Mr. HUTCHINSON. Can you do that in one classification—pay one man one salary and another man another salary and keep harmony?

Mr. GRAVES. Of course, I would have to take care of that point, giving consideration to length of service and the competency of the men, just like one does in any business.

The CHAIRMAN. What is the next item?

Mr. GRAVES. It is on page 113. There is a request for increased authority.

The CHAIRMAN. An increase from \$800 to \$1,500 in the limitation on the cost of buildings erected on the national forests?

Mr. GRAVES. Yes.

The CHAIRMAN. State why that should be done. That suggestion has been made a number of times but turned down. It was increased from \$650 to \$800.

Mr. GRAVES. Yes, sir.

The CHAIRMAN. Why do you propose to increase it to \$1,500 at this time?

Mr. GRAVES. We find that it is not possible to erect these buildings for \$800 in many cases. We have cases where stations a few years ago could be built within the old limitations, but with the increased cost of labor and materials we find that it is impossible to build now. We have a number of cases where old buildings have been burned down and must be replaced. In many instances we have been unable to erect urgently needed buildings because it is impossible to erect what is needed within the prescribed limitations.

We are facing the need of numerous replacements where the old buildings are tumbling down or have been burned. It is impossible to build for \$800 a ranger station which is at all adequate. I have several estimates in my hand of buildings which it is desirable to build. An illustration occurs on one of the Wyoming forests, where a ranger station was burned in the spring of 1918. We find ourselves unable to erect a house there within the limitations. The station is 100 miles from a railroad, and in order to build a house of four rooms we would have to pay about \$800 for the material and \$600 for the labor, and the freighting in of the parts that would have to be brought in would cost \$100, so that right there is \$1,500. There are other similar examples where the cost runs up to \$1,400 or \$1,500 or more.

The CHAIRMAN. Do you contemplate remodeling or adding to any buildings?

Mr. GRAVES. Yes, sir. In some cases, where the original building was inadequate, an additional room or two is needed. This is the reason why we have inserted in the language of this paragraph "or improved," because if a building originally cost about the amount of the limitation existing at that time it would be impossible under the law to erect an addition, since it would bring the total for that building up to more than the former limitation. With the proposed change in language an addition could be made, provided it does not exceed the new limitation.

The CHAIRMAN. Have you not authority to repair?

Mr. GRAVES. We can repair but not enlarge. We could enlarge if the total cost of the building as enlarged would not exceed the legal limitation.

The CHAIRMAN. Why is it necessary to enlarge?

Mr. GRAVES. We have some very small houses, which are inadequate for the needs of permanent ranger stations.

Mr. McLAUGHLIN of Michigan. They are only temporary quarters, are they not?

Mr. GRAVES. No; in many of the cases they are permanent quarters, where a man lives with his family the entire year.

Mr. McLAUGHLIN of Michigan. I gathered from your answers to other questions that most of these structures are only temporary, and that the Government furnished very few permanent quarters to its employees.

Mr. GRAVES. No; I explained that a portion of the rangers were furnished with permanent quarters where we stationed them at points where it was impossible to get houses.

The CHAIRMAN. The purpose is to furnish them larger and better quarters?

Mr. GRAVES. Yes; where the present quarters are not suitable.

The CHAIRMAN. What did you mean when you spoke about enlarging? You have authority to make repairs, and you have been making them?

Mr. GRAVES. That is where the present quarters are not large enough. We have, in some instances, not furnished adequate quarters. In those cases we would furnish them better quarters.

The CHAIRMAN. In how many instances do you propose to furnish them with better or larger quarters?

Mr. GRAVES. I suppose there may be 20 or 30 buildings to-day that should be so improved. Is that right, Mr. Bronson?

Mr. BRONSON. There are about 50 altogether.

Mr. GRAVES. Fifty; and we will need in another year to build about 25 new houses.

Mr. CANDLER. In building these buildings, do you get any of the building materials from the forest itself?

Mr. GRAVES. Yes; in some cases we put up a log structure; but we find that the total cost of a log structure is just about as great as and in some cases greater than a frame house.

Mr. CANDLER. Could you get lumber sawed in those mills?

Mr. GRAVES. We can, in some instances.

Mr. CANDLER. When you do, you charge that up to the administration?

Mr. GRAVES. Yes; that has to go into the total cost.

The CHAIRMAN. What is the next item?

Mr. GRAVES. The next item is No. 81, on page 114, which we have just been discussing: "For employment of forest supervisors, deputy forest supervisors, forest rangers, and forest guards, \$1,673,540."

In No. 82, which is the general paragraph authorizing expenditures on the individual national forests, the words "of other employees," have been added, so as to make the paragraph read: "For salaries of other employees and field and station expenses," and so on. That would be a corollary of the transfer of the supervisors and rangers from the statutory roll, because the general expense items would not be used for the salaries of these officers.

The CHAIRMAN. That is not necessary unless we make the transfer?

Mr. GRAVES. No. Mr. Harrison, can I ask you about this?

Mr. HARRISON. Certainly.

Mr. GRAVES. Did you say that that item as to the Idaho forest and the Payette forest had not come over?

Mr. HARRISON. It came over, but when it reached the House it was sent to the Committee on Appropriations. Mr. Haugen is arranging for its transfer to this committee. I have a copy here.

Mr. GRAVES. A short time ago, something over a million acres of public lands were added in two forests in Idaho, and that bill has only recently passed and become a law.

The CHAIRMAN. You say you added to two forests. Are these included?

Mr. GRAVES. Yes; the Idaho and the Payette Forests.

Mr. HARRISON. Several changes are necessary. I have a copy of the supplemental estimate here.

The CHAIRMAN. I suggest that we take them up in their order.

Mr. GRAVES. The reason I brought that in here is because that change involves the employment of some additional officers who would be paid from this fund.

The CHAIRMAN. It may be better to take them up in the order in which they appear in the estimates, as we may have to refer to this on the floor of the House.

Mr. GRAVES. But the money which would go for the employment of the rangers and the deputy supervisors would be included in item 81. This amounts to \$10,000. In addition there has been added, for general expenses for this new area, \$10,775 to the general expenses of the Payette National Forest and \$18,980 to the general expenses of the Idaho National Forest. And the necessity of increasing that item is to take care of those extra officers. That was the reason I brought it up at this moment.

The CHAIRMAN. You want these items taken care of here?

Mr. GRAVES. Yes; so far as the salaries of rangers and an assistant supervisor are concerned. In addition there is an increase of the general expense items of the Idaho and Payette National Forests.

The CHAIRMAN. How much would that be?

Mr. GRAVES. For salaries of those new officers, \$10,000.

The CHAIRMAN. So the amount in item 81 should be increased by \$10,000?

Mr. GRAVES. Yes.

Mr. HARRISON. Do you wish the estimate inserted in the record now? It involves an increase in items 81, 138, and 175, and they are all indicated in a supplemental estimate, which with your permission I will insert in the record.

(The supplemental estimate referred to follows:)

DEPARTMENT OF AGRICULTURE,

OFFICE OF THE SECRETARY,

Washington, December 10, 1919.

The SECRETARY OF THE TREASURY.

SIR: In accordance with the provisions of H. R. 1429 (Public, 69), effective October 29, 1919, the Thunder Mountain area, in central Idaho, comprising 1,095,022.11 acres, has been added to the Idaho and Payette National Forests—594,535 acres to the former and 500,485 to the latter. Since this addition was made after the estimates for the fiscal year 1921 have been submitted, it is necessary to increase the proposed appropriation for the Idaho and Payette Forests in order to provide funds for the administration of the new area. I am, therefore, transmitting herewith a supplemental estimate in the sum of \$39,755, together with a statement indicating the changes which should be made in the Book of Estimates (committee print).

Respectfully,

D. F. HOUSTON, *Secretary.*

Proposed changes in "Estimates of appropriations required for the service of the fiscal year ending June 30, 1921," for the Forest Service Department of Agriculture, occasioned by the addition of the Thunder Mountain area, in central Idaho, to the national forests:

Page 114. Item (81) and the note following it should read as follows:

(81) For employment of forest supervisors, deputy forest supervisors, forest rangers, and forest guards, \$1,683,540.

NOTE.—Of this amount \$1,673,540 covers places transferred from the statutory roll at the same salaries (see note under item 5). The remaining \$10,000 is to provide two forest rangers at \$1,100 for the Idaho National Forest and one deputy forest supervisor at \$1,500, three forest rangers at \$1,100, and four forest guards for six months for the Payette National Forest in the administration of the Thunder Mountain area, which became national-forest land by H. R. 1429, now Public, 69, effective October 29, 1919.

Page 117. Item (138):

(138) Idaho National Forest, Idaho (\$18,385), \$37,365.

NOTE.—This increase of \$18,980 for the Idaho National Forest is needed for the maintenance, improvement, and protection of the 594,535 acres of land formerly in the Thunder Mountain area, which will be administered as part of the Idaho National Forest.

Page 118. Item (175):

(175) Payette National Forest, Idaho (\$8,537), \$21,441.

NOTE.—Of the increase provided (\$12,904), \$10,775 is to cover the maintenance, improvement, and protection of 500,485 acres formerly in the Thunder Mountain area which will be administered as part of the Payette National Forest.

Page 121. Item (239): The amount \$4,000,627 where it appears under this item should be changed to \$4,040,382.

Page 122. The first paragraph of the note on this page should read as follows:

NOTE.—There is an apparent increase in this item of \$1,971,181, but, taking into consideration the transfer from the statutory roll to a separate lump-fund item of the forest supervisors, deputy forest supervisors, forest rangers, and forest guards enumerated in item 5, with salaries aggregating \$1,673,540, and the transfer from the item for general administration in the District of Columbia to the statutory roll of the Division of Publications of an assistant in charge of motion-picture activities at \$2,520, the actual increase is \$300,161. This results from changes in 98 of the individual forest items, providing for increases in 91, amounting to \$328,886, and decreased in 7, amounting to \$28,755. Of the net increase of \$300,161, \$39,755 is for the administration, including salaries (see note under item (81)), of the Thunder Mountain area; \$136,672 is for additional fire protection; \$60,438 for timber sales and forest management on the national forests; \$35,528 for grazing administration; \$2,600 for the care of buffalo and game on the Wichita National Forest and Game Preserve, Okla.; and \$16,168 for increased costs of travel and other miscellaneous items of general expenses in connection with the administration of the national forests.

Page 123. Change first table by the following insertions and corrections:

National forest.	Appropriation, 1920.	Appropriation, 1921.	Increase
Idaho.....	\$18,385	\$37,365	\$18,980
Payette.....	8,537	21,441	12,904
Total.....	1,029,554	1,319,715	318,886
Net increase.....			290,161

Make following changes in table "National forests" pages 123, 124, and 125:

Employees.	Rate.	Estimated, 1921.
Salaries:		<i>Number.</i>
Deputy forest supervisors.....	\$1,500	30
Forest rangers.....	1,100	255
Forest guards.....	1,500	16
Clerks.....	1,080	1
Wages, miscellaneous and temporary labor, \$125 to \$60 per month.....		3,803
Total.....		5,747
Salaries.....		\$1,926,022
Wages.....		848,183
Other objects of expenditure, miscellaneous items.....		261,999

¹ Temporary.

Page 139. Change "\$5,745,775" to "\$5,785,530."

Page 140. Change "\$5,745,775" to "\$5,785,530."

Page 140. Change "\$6,557,895" to "\$6,597,650."

Mr. McLAUGHLIN of Michigan. As a general proposition, why are laws passed, introduced by Members from the States, to add some of their lands to the national forests? I know many of the Members from those States resent the entire proposition of the national forests. They do not like it. They would like to have the lands released to be controlled by the States. On the other hand, others introduce bills to add some of their area to the national forests. It looks to some of us as though they had found some land out there that they did not want, which was no good to them at all, and which they wanted to attach to a national forest.

Mr. GRAVES. The situation would be best illustrated by a word about this particular area. In central Idaho, in the remotest and undeveloped region, is a large area of forest land that has remained as public land, uncontrolled and unprotected, since the establishment of the national forest. Fires have burned uncontrolled on the area, threatening and damaging the surrounding forests. There has been no control of grazing, and this land has been used by sheep. Over 300,000 sheep were crowded in in 1918, whereas the grazing capacity is not over 75,000 or 80,000. The result is that that country is burning up. The land is being overgrazed, with resulting erosion, and the country, which has great possibilities for development and use, is becoming so injured that the people of Idaho themselves, who in former days were very much opposed to the Forest Service, have requested the addition of the area to the national forests. The Idaho Legislature in two successive sessions memorialized Congress to set this area aside as a national forest.

Mr. LEE. What is the area involved?

Mr. GRAVES. Over 1,000,000 acres. There are minerals there. Formerly a great deal of prospecting was done, and there are still mineral possibilities; but there is no mineral development because that land is so remote, and it is not being developed, no roads are being built in there, and it is being subjected to a great deal of damage. Last summer fires started in that section, and there was no one there to watch them. Some of the fires worked over into the neighboring Idaho forest, entailing great damage, and costing a large sum to check.

Mr. McLAUGHLIN of Michigan. It was Federal land before?

Mr. GRAVES. It was Federal land, in the public domain, and lying absolutely unprotected and unregulated. It is for the organization of this new area and its administration that we require the increases in item 81, for the salaries of new forest officers and in the general expense items for the Payette and Idaho National Forests. We come now to the list of individual national forests, items 83 to 238, inclusive.

Mr. LEE. What are the names of those new forests in New England?

Mr. GRAVES. The White Mountain, in New Hampshire; the Pisgah, in North Carolina—

Mr. LEE. The White Mountain and the Pisgah, and then there is one below here.

Mr. GRAVES. Natural Bridge and Shenandoah.

The CHAIRMAN. What is the increase there?

Mr. GRAVES. There are increases for the individual forests involving changes in 97 of the forests. There are increases in 90 of those and decreases in the cases of 7 of them. The increases are for several different purposes. There are a number of increases for protection, aggregating, for all of these national forests, \$136,672. That applies to 49 different forest units. There is an increase requested for expenses and additional salaries of temporary men, chiefly in connection with timber sales and general administration, of \$69,438, involving 39 forests.

Mr. McLAUGHLIN of Michigan. Nearly \$2,000 a forest.

Mr. GRAVES. For increased expenses in connection with the grazing administration, \$35,528 on 40 forests.

For increased cost in connection with travel and other miscellaneous expenses, \$16,168 on 43 forests.

An increase of \$2,600 on the Wichita National Forest in connection with the care of buffalo and game. The Wichita Forest is primarily a game refuge and preserve, on which we have a large herd of buffalo and a great deal of other game.

Mr. McLAUGHLIN of Michigan. Does the Biological Survey have anything to do with that forest?

Mr. GRAVES. The Forest Service has the direct responsibility for administering it, but we are using the service of the Biological Survey in connection with many of the problems of game culture.

Then, there is an increase of \$39,755 for these new additions to the Idaho and Payette Forests.

Mr. McLAUGHLIN of Michigan. Then, the gift of these lands, wishing them onto the Forest Service, involves a good deal of expense to the Government?

Mr. GRAVES. Yes, sir. If they had been under administration last summer, we would probably have saved \$100,000 in fire fighting and besides prevented the destruction of a lot of timber.

The CHAIRMAN. Was this land owned by private parties?

Mr. GRAVES. Yes, sir; it was public domain. This makes an aggregate increase for all of the national forests of \$300,161. I have prepared a detailed statement explanatory of each one of these items, which you can put in the hearings if you choose to do so.

The CHAIRMAN. Have you that prepared in pamphlet form?

Mr. GRAVES. Usually this statement is filed with the committee and inserted in the record, and I have this all prepared.

Mr. McLAUGHLIN of Michigan. Is there not a similarity in service on each one of these forests?

Mr. GRAVES. No, sir. There is a similarity in the work, but a very great diversity in forests in different regions. Even in the fire protection there is an enormous divergence, in accordance with the hazard, and there is a great variation in the demand for timber and demands for grazing.

Mr. McLAUGHLIN of Michigan. Then the differences are in fire protection and the demands for timber and grazing. What other items of expense are common to all these forests?

Mr. GRAVES. There is often a great deal of activity in connection with the recreation use; but that is ordinarily a use of time of the regular force. Great numbers of campers come into the mountains and create demands for camp sites and sites on which to put up summer homes. In some of the forests it is a very active business.

Mr. JONES. I do not want to anticipate your complete report, but does this estimate show your receipts to the Government for sales of timber and for grazing?

Mr. GRAVES. That is shown in my annual report.

Mr. JONES. It is not shown in this Book of Estimates?

Mr. GRAVES. No, sir.

Mr. JONES. That money is turned into the Treasury?

Mr. GRAVES. Yes, sir.

Mr. McLAUGHLIN of Michigan. From the statement which you submitted here as to the activities in each of these forests, I gather from what you say that, while there is more work of one kind than another on some forests than on others, the character of the work is the same.

Mr. GRAVES. The question is of the volume of work of the different classes.

Mr. McLAUGHLIN of Michigan. That is, they differ as to volume?

Mr. GRAVES. Yes, sir. We have been trying to take care of a large amount of stock on the national forests.

Mr. McLAUGHLIN of Michigan. So that, if a question is asked about how the money is spent on a particular forest, it can be answered by saying that part of it goes for fire protection, part to look after the grazing, part to look after the sale of timber, and some for the locating of camps and buildings for recreation use and for summer homes, and so on?

Mr. GRAVES. That (referring to the descriptive text) is tabulated on one sheet, and I think you will find that this is not as voluminous as it appears, because many of those individual sheets contain only a few lines. You see, there is one page to a forest.

Mr. JONES. In round numbers, what were the total receipts from the forests?

Mr. GRAVES. About \$4,360,000.

The CHAIRMAN. Have you reached the item where you wish to deal with the question of receipts?

Mr. GRAVES. That does not come under any particular item.

The CHAIRMAN. We want to discuss it all at one time. Where does it come in?

Mr. GRAVES. I think this would be a desirable place to insert in the record the amount of business which has been done during the past year on the national forests.

Mr. JONES. Your total appropriation for this fiscal year is how much; about \$5,750,000, is it not?

Mr. GRAVES. It is about \$6,000,000.

Mr. JONES. And you say that your receipts for the last fiscal year were about \$4,000,000?

Mr. GRAVES. \$4,360,000.

Mr. LEE. I suggest that you give us the dates when sales were made.

The CHAIRMAN. Will you state that again in detail, giving the amounts of each item, the expenditures, and the receipts. To begin with, on what page of your report does it appear?

Mr. GRAVES. On page 5 of the annual report. The largest returns were from grazing, \$2,609,169.85. From timber sales, \$1,540,099.96.

Mr. JONES. What do you call that; timber sales—timber business?

Mr. GRAVES. Timber business.

Mr. JONES. The Government is not manufacturing lumber itself?

Mr. GRAVES. No, sir.

Mr. JONES. It sold that stumpage?

Mr. GRAVES. Yes, sir.

Mr. JONES. It would be timber sales?

Mr. GRAVES. Yes, sir; timber sales. There may be involved in that some timber trespass; that is, some moneys that come in from the taking of trees, or cutting over the line, or from burning by fire.

For special uses of land, like the use for summer homes, and for a great variety of other purposes, \$136,822.99. For water power, \$72,322.06.

Mr. McLAUGHLIN of Michigan. That is, for leases of sites for water power,

Mr. GRAVES. Yes.

Mr. JONES. You have no power developed?

Mr. GRAVES. No, sir. Those are the items that make up the total of \$4,358,414.86.

The CHAIRMAN. What are the expenses?

Mr. GRAVES. The total expenditures? Would you like this for the national forests?

The CHAIRMAN. The cost of the service?

Mr. GRAVES. The cost in connection with the national forests for the work outside of Washington, \$4,801,794. That includes the items in the regular appropriation bill for improvement work and various other items that represent a capital rather than an operating charge.

Mr. JONES. Have you got that itemized so that you could classify it as to grazing, timber sales, and other sources of your receipts?

Mr. GRAVES. The cost of it?

Mr. JONES. Yes.

Mr. GRAVES. Yes; though we gave up two years ago our detailed cost accounting system on account of the losses from our force, so that some of the items have to be estimated. That can be obtained only by classifying the time of our permanent officials, but I can give you approximately the cost of the different lines of work.

Mr. GRAVES. I will have to take it from our books.

The CHAIRMAN. You have not the total cost?

Mr. GRAVES. No, sir. I will have to insert the exact items in the text of the hearings.

(The statement referred to follows:)

Expenditures of the Forest Service during the fiscal year ending June 30, 1919.¹

Regular expenditures from annual appropriation:

Field expenses connected with the national forests.....	\$4, 801, 794. 87
General expenses connected with the Washington office.....	472, 403. 22
Research and recording of results.....	388, 023. 68
Total	5, 662, 221. 57
Emergency fire expenditures, derived in 1919 from the national security and defense fund.....	650, 000. 00
Cooperative contributions for work on national forests, including protection, improvements, and brush burning.....	522, 840. 05
Cooperation with States in fire protection outside the national forests	99, 921. 13
Cooperative contributions from Army and Navy for military research in wood.....	374, 233. 81
Construction of roads, from the 10 per cent fund (total available, \$350,533.75).....	279, 055. 63
Construction of roads, section 8, Federal-aid road act and Post Office appropriation act (total available, \$4,000,000).....	548, 764. 80
Amount paid to States, representing 25 per cent of gross receipts.....	1, 069, 886. 88
Special apportionment for Arizona and New Mexico for school lands within national forests.....	78, 687. 32

The CHAIRMAN. Does that include what you paid for the building of roads and the amount paid to the States?

Mr. GRAVES. Yes.

The CHAIRMAN. Including expenditures paid to the States for the building of roads?

Mr. GRAVES. That is taken out of our receipts.

The CHAIRMAN. Is there any amount to be deducted from the \$4,358,000 realized from receipts?

Mr. GRAVES. Yes, sir.

The CHAIRMAN. Then it is not taken out?

Mr. GRAVES. It is taken from our receipts—a percentage of our receipts. It is essentially an appropriation from Congress.

The CHAIRMAN. Is that to be deducted from the amount you gave as the total receipts or added to it?

Mr. GRAVES. No; added to the expenditures.

The CHAIRMAN. So that the \$4,358,000 does not represent the actual receipts?

Mr. GRAVES. Not the net, but the gross receipts.

The CHAIRMAN. There is to be deducted, then, the amount paid for the building of roads and the amounts paid to the States for schools?

Mr. GRAVES. Yes, sir.

Mr. McLAUGHLIN of Michigan. It is about 45 per cent, is it not?

Mr. GRAVES. It is about 45 per cent.

Mr. McLAUGHLIN of Michigan. Those items are to be deducted and added to the expenditures?

Mr. GRAVES. Yes.

Mr. McLAUGHLIN of Michigan. Of that \$4,000,000, only 55 per cent of it goes into the Treasury of the United States?

¹ This is from statement of Aug. 30, 1919. Some bills are still outstanding.

Mr. GRAVES. Only 55 per cent remains there.

Mr. McLAUGHLIN of Michigan. It goes to the receipts?

Mr. GRAVES. Yes.

The CHAIRMAN. Then the net would be somewhere about \$2,500,000?

Mr. GRAVES. Yes.

Mr. JONES. How do the States get that fund for the schools?

Mr. GRAVES. By the act of May 23, 1908, 25 per cent of the gross receipts was appropriated to the States for distribution among the counties for schools and roads, in lieu of taxes, for the Government does not pay taxes; and then, later, an additional 10 per cent was appropriated for the building of roads in the national forests under our direction. Then when the Federal aid road act was passed it was provided that an additional 10 per cent should be used for the liquidation of amounts devoted to national forest roads.

Mr. JONES. If it had not been done that way, it would have required an additional appropriation to do it, would it not?

Mr. GRAVES. Yes.

Mr. HUTCHINSON. The States, then, do not appropriate any money toward maintaining the forests?

Mr. GRAVES. No, sir.

Mr. LEE. With your permission, Mr. Chairman, I would like to ask Col. Graves a question or two before he leaves this item. I just wanted to ask you, in connection with the matter of receipts from the timber sold: Did you get credit for the timber that was shipped from Alaska and also that which was used in the war?

Mr. GRAVES. Credit only by an announcement in the annual report. It does not appear in the statement of receipts.

Mr. LEE. Are you not entitled to that?

Mr. GRAVES. There is a provision by which the Army and the Navy may secure timber from the national forests without paying for it.

Mr. LEE. Yes, but the national forests should have credit for that.

Mr. McLAUGHLIN of Michigan. There was objection to that. It was said that the national forests should get credit for it, but this was denied on the ground that the Army and Navy ought to have access to those resources.

Mr. GRAVES. Yes.

Mr. McLAUGHLIN of Michigan. It is a matter of bookkeeping, of course; but the Forest Service will never pay out if you give all the timber away.

Mr. JONES. I would take credit for it in the report, whether they gave it to me or not.

Mr. GRAVES. I have referred to that in our report.

Mr. JONES. What they took came from the stumpage under your jurisdiction?

Mr. GRAVES. Yes.

Mr. McLAUGHLIN of Michigan. They took it without paying for it, just the same.

Mr. JONES. I would take credit for it whether they gave it or not.

Mr. GRAVES. During the last year there were granted to the War Department, in connection with the spruce production in the Northwest, permits covering 6,000,000 feet, of which there were actually cut 3,750,000 feet. It was not a large amount.

In Alaska, permits were granted for the Alaskan Engineering Commission for cutting 5,758,000 feet of timber in connection with the construction of their railroad. That is also not a large item.

Mr. JONES. No. All those credits are not in these net receipts here?

Mr. GRAVES. No, sir.

Mr. JONES. They do show up in your report?

Mr. GRAVES. Yes.

Mr. JONES. Is it your hope some time to make this forestry bureau self-supporting?

Mr. GRAVES. I feel that in the long run it should be self-supporting, but I do not feel—

Mr. JONES. It depends on what latitude they will give you in cutting stumpage?

Mr. GRAVES. I do not feel that we should sacrifice the public interests merely in order to make it self-supporting.

Mr. JONES. No.

Mr. GRAVES. I do not think I could justify that. I do not think we should sell timber that would better be held for the uses of the country, by cutting it prematurely before it is really needed or before its cutting would be good economy from a lumbering standpoint or stumpage value.

Mr. JONES. But as a forester you believe that the forest should be trimmed; that mature trees should be cut down?

Mr. GRAVES. Mature trees should be cut and used. We have, of course, a great deal of mature timber. We have some which is deteriorating, but a great deal of it is remote. Perhaps in the course of five years (and certainly the timber will last five years) larger amounts will be needed, and the value of it will be greater than it is to-day.

Mr. McLAUGHLIN of Michigan. Mr. Jones has asked a question that has often been asked in these hearings and on the floor. I remember as long as 12 years ago a more or less distinguished gentleman connected with the Forest Service was asked how soon the forests would be self-sustaining, and, as I remember, he fixed the time at about five years. There were some then who questioned the wisdom of his estimate.

Mr. CANDLER. That was Mr. Pinchot.

Mr. JONES. Yes. His estimate was wrong.

Mr. GRAVES. We have, of course, a great deal of work which does not contribute anything to actual financial receipts. We have a great deal of work in connection with the adjustment of boundaries, the settlement of claims as to land, and work of that kind. That sooner or later will be finished. The work of improvement, outside of maintenance, is really a capital charge. The forests represent the remaining frontier of the country. If we go on developing them and building roads and so on, it will be same time before we can cover all the improvement charges by those receipts. The actual operating expenses are pretty nearly covered now by the receipts.

Mr. ANDERSON. Is the amount of stumpage you sell limited only by the policy of the department or of the Forest Service as to how much you will cut?

Mr. GRAVES. I could sell more timber to-day by making sacrificing prices and the adoption of a policy of dumping on the market:

but it would be unwise, waste our resources, and react in every way to hurt the public. In some of the forests there is a greater demand than I am willing entirely to fill, because, if I sold all that is demanded, it would lead to a gutting of the forests—such an overcutting that soon even local communities would not have at hand sufficient timber for their needs. We have a clear-cut policy not to overcut the forests. They should be a source of continuous production and not be wastefully exploited.

Mr. ANDERSON. Is not the amount of cutting about keeping pace with the local demand?

Mr. GRAVES. We do not yet cut up to the capacity of the forests. Our total amount of cut is less than one billion feet, and the capacity based on the rate of growth would be several billion feet. We are well within the limit.

Mr. JONES. I was going to ask you what comparison you made, if any, as to the increase in stumpage as against the fire destruction. How do they balance up?

Mr. GRAVES. There has not been any great marked increase in stumpage in the national forests on an average. In some of our more accessible areas the stumpage has shown a marked increase.

Mr. JONES. I am not speaking of price now but of growth. You testified to serious losses of this stumpage which you have had by fire. Of course, if that is continued annually there is going to be a time when your stumpage is all gone.

Mr. GRAVES. Yes.

Mr. JONES. What do you figure as to the increase of stumpage in growth?

Mr. GRAVES. The increase of stumpage is greater than our loss by fire. It is probably greater, even this year, by from one to three billion feet. I am speaking of potential growth.

Mr. JONES. Yes.

Mr. GRAVES. In normal years it is even greater.

Mr. JONES. I am not conversant with the character of timber in the Northwest, and that is the reason I am asking for some information. Is it a quick-growing tree, as compared with timber in other parts?

Mr. GRAVES. On the Pacific coast the Douglas fir—the west-slope Douglas fir—is one of the most rapid-growing trees that we have; and on fairly good soil it has a possibility of growing 1,000 feet per acre per annum. That is compared with some of the Rocky Mountain forests, having a growth of probably not over 100 feet. I refer to very slow-growing lodgepole pines and Rocky Mountain Douglas fir.

Mr. CANDLER. Could you make an approximate estimate of what your receipts were this fiscal year compared with what they were last fiscal year?

Mr. GRAVES. During the current year our timber sales are running so far about \$175,000 ahead of the same period last year. It is very difficult to tell in advance just what the situation will be by the end of the year. I think, however, that we will have to cut possibly 800,000,000 feet, and that will possibly increase the timber-sale receipts to the extent of \$200,000 to \$250,000. There may be a slight decrease in our grazing receipts, because we are taking off some of the war increase. In some places that were overgrazed we

are taking off some of the stock, and in some places in the West the drought was so severe last summer that the stock was taken out of the country and it has not been restored.

Mr. CANDLER. Your receipts this year are considerably increased, though, over what they were last year?

Mr. GRAVES. Yes; there is some increase this year.

Mr. CANDLER. And, as the regular increase comes, year after year, you will approximate making the national forests self-sustaining?

Mr. GRAVES. I think as our timber business increases—that is the greatest potential source of revenue—we should be able to cover all of the operating costs and all nonincome-producing activities, such as surveys of boundaries, mapping, and so on, and maintenance of improvement, but perhaps not the building of roads, which is really a separate matter and a capital charge.

The CHAIRMAN. Your books have been closed for last year. What was the deficit in dollars and cents last year?

Mr. GRAVES. For the Forest Service, outside of the road building and not including the extraordinary expenses for the emergency force, it is about \$1,500,000. That is, our appropriation was slightly under \$6,000,000 last year and our receipts were nearly \$4,500,000. This includes, of course, many expenditures wholly outside the national forests, such as research, our laboratories, cooperative work, and Washington overhead.

Mr. CANDLER. I think you have done well, and I would be glad if you would insert the figures for three or four years back, showing the continually increasing benefit derived, so that we may be able to show on the floor of the House the good business you are doing.

Mr. McLAUGHLIN of Michigan. When you are extending your remarks will you itemize your receipts and take the average price per thousand of timber sold, the number of sales, the different charges for the grazing, the number of permits, and, if you have the information, give a comparison between your charges for grazing and the charges by private owners of land? There has been some question and some criticism on the floor occasionally as to charges that you make; that they are either too high or too low as compared with charges made by private parties.

Another thing, questions are asked and there are criticisms as to your treatment of settlers as to timber and grazing privileges for themselves. Will you kindly put in something brief but to the point as to your treatment of settlers, the allowance that is made to a settler for his own use as to timber and as to grazing, to show that you do, as I believe you do, treat the settlers fairly?

Mr. GRAVES. Yes. That can be readily tabulated, as we have the tables which show that clearly.

The CHAIRMAN. Also give the amount paid for road building and everything in detail so that we can furnish specific information if called upon to do so.

Mr. GRAVES. Yes, sir; I have that.

Mr. McLAUGHLIN of Michigan. Can you also put in something regarding your plan for making charges in connection with summer resorts, as you have termed them, and your plan for charging for water-power sites?

(The various statements referred to follow:)

Summarized statement of receipts from the national forests, fiscal year ending June 30, 1919.

Timber sales	\$1,503,367.37
Timber trespass and settlement	17,562.15
Turpentine sales	13,220.08
Turpentine trespass	691.88
Grazing permits:	
Cattle, horses, and swine	1,607,006.85
Sheep and goats	949,955.35
Grazing trespass	52,207.65
Special uses:	
Water power	72,322.06
Occupancy of lands	136,112.56
Occupancy trespass	689.43
Fire trespass	5,258.48
Property trespass	21.00
Total	4,358,414.86

Comparison of receipts, 1910 to 1919.

Net receipts, fiscal year—

1910	\$2,041,181.22
1911	1,968,993.42
1912	2,109,258.91
1913	2,391,920.85
1914	2,437,710.21
1915	2,481,469.35
1916	2,823,540.71
1917	3,457,028.41
1918	3,574,930.07
1919	4,358,414.86

STUMPAGE PRICES DURING THE FISCAL YEAR ENDING JUNE 30, 1919.

There were sold about 773,209,000 feet, board measure, of timber on the national forests, with an average stumpage value of \$2.35 per thousand. This represents a range of from 50 cents a thousand for the less valuable species in the more remote sections to over \$7 per thousand for the better and more accessible timber.

Timber cut under sales, fiscal year ended June 30, 1919.

State.	Board feet.			Value.		
	Commercial sales.	Cost sales.	Total.	Commercial sales.	Cost sales.	Total.
Alaska	44,764,000		44,764,000	\$99,893		\$99,893
Arizona	41,174,000	333,000	41,507,000	95,135	\$204	95,399
Arkansas	21,772,000	242,000	22,014,000	62,224	195	62,419
California	84,703,000	1,210,000	85,913,000	189,785	666	190,451
Colorado	46,762,000	1,320,000	48,082,000	87,827	995	88,822
Florida	578,000		578,000	1,234		1,234
Georgia	1,725,000		1,725,000	4,744		4,744
Idaho	63,560,000	4,252,000	67,802,000	160,011	3,170	163,181
Michigan	236,000		236,000	341		344
Minnesota	8,468,000		8,468,000	33,107		33,107
Montana	66,031,000	5,971,000	72,002,000	144,768	4,958	149,726
Nevada	1,504,000	61,000	1,565,000	2,110	45	2,155
New Hampshire	4,116,000		4,116,000	21,268		21,268
New Mexico	40,633,000	419,000	41,052,000	91,139		91,506
North Carolina	4,876,000		4,876,000	15,506	367	15,506
Oregon	114,911,000	2,060,000	117,580,000	233,781	1,576	235,357
South Dakota	14,663,000	757,000	15,420,000	33,323	697	34,020
Tennessee	1,711,000	156,000	1,867,000	3,874	117	3,991
Utah	13,759,000	915,000	14,674,000	31,044	699	31,743
Virginia	6,709,000	16,000	6,725,000	17,708	15	17,793
Washington	78,073,000	576,000	78,649,000	119,013	308	119,321
West Virginia	2,000		2,000	10		10
Wyoming	25,436,000	700,000	26,136,000	57,573	598	58,771
Total	696,156,000	19,597,000	705,753,000	1,505,481	14,670	1,520,151

Timber sold fiscal year ended June 30, 1919.

State.	Board feet.			Value.		
	Commercial sales.	Cost sales.	Total.	Commercial sales.	Cost sales.	Total.
Alabama.....		15,000	15,000		\$82	\$82
Alaska.....	47,650,000		47,650,000	\$81,216		81,216
Arizona.....	69,967,000	494,000	70,461,000	139,249	396	139,645
Arkansas.....	10,627,000	286,000	10,913,000	47,096	217	47,313
California.....	239,919,000	1,981,000	241,900,000	565,006	1,087	566,093
Colorado.....	54,536,000	1,501,000	56,037,000	123,158	1,130	124,288
Florida.....	1,911,000		1,911,000	4,825		4,825
Georgia.....	1,977,000		1,977,000	4,927		4,927
Idaho.....	79,898,000	6,329,000	86,227,000	151,532	4,727	156,259
Michigan.....	268,000	3,000	271,000	292	2	294
Minnesota.....	4,043,000		4,043,000	19,086		19,086
Montana.....	28,462,000	8,256,000	36,718,000	60,642	6,662	67,304
Nevada.....	2,854,000	72,000	2,926,000	1,060	54	1,114
New Hampshire.....	2,580,000		2,580,000	11,376		11,376
New Mexico.....	15,299,000	541,000	15,840,000	42,826	399	43,225
North Carolina.....	36,549,000		36,549,000	112,350		112,350
Oregon.....	92,192,000	2,866,000	95,058,000	237,355	1,636	238,991
South Dakota.....	24,843,000	811,000	25,654,000	68,905	698	69,603
Tennessee.....	4,776,000	200,000	4,976,000	15,404	150	15,554
Utah.....	11,983,000	1,399,000	13,382,000	27,998	1,092	29,090
Virginia.....	4,509,000	16,000	4,525,000	9,886	15	9,901
Washington.....	32,312,000	637,000	32,949,000	71,728	334	72,062
West Virginia.....	2,000		2,000	10		10
Wyoming.....	8,052,000	860,000	8,912,000	19,493	770	20,263
Total.....	773,209,000	26,267,000	799,476,000	1,815,420	19,451	1,834,871

Year-long rates for grazing on the national forests, season of 1919.

State.	Cattle.	Horses.	Sheep and goats.	Swine.
Alabama.....	\$1.50	\$2.00	\$0.45	\$0.90
Arizona.....	1.00	1.25	.25	.75
Arkansas.....	.80	1.00	.20	.60
California.....	1.00 to 1.40	1.25 to 1.75	.25 to .35	.75 to 1.05
Colorado.....	1.00	1.25	.25	.75
Florida.....	.80	1.00	.20	.60
Georgia.....	1.50	1.87	.37½	1.12½
Idaho.....	.80 to 1.20	1.00 to 1.50	.20 to .30	.60 to .90
Michigan.....	1.00	1.25	.25	.75
Montana.....	.80 to 1.20	1.00 to 1.50	.20 to .30	.60 to .90
Nebraska.....	1.50	2.00	.45	.90
Nevada.....	1.00 to 1.20	1.25 to 1.50	.25 to .30	.75 to .90
New Hampshire.....	1.50	2.00	.45	.90
New Mexico.....	1.00	1.25	.25	.75
North Carolina.....	1.50	2.00	.45	.90
Oklahoma.....	1.50	1.87	1.12½	.37½
Oregon.....	1.00 to 1.20	1.25 to 1.50	.25 to .30	.75 to .90
South Dakota.....	1.00	1.25	.25	.75
Tennessee.....	1.50	2.00	.45	.90
Utah.....	1.00 to 1.20	1.25 to 1.50	.25 to .30	.75 to .90
Virginia.....	1.50	2.00	.45	.90
Washington.....	1.00 to 1.20	1.25 to 1.50	.25 to .30	.75 to .90
Wyoming.....	1.00 to 1.20	1.25 to 1.50	.25 to .30	.75 to .90

Grazing permits issued and number of stock grazed.

State.	Cattle, horses, and swine.				Sheep and goats.		
	Permits issued.	Number of stock grazed.			Permits issued.	Number of stock grazed.	
		Cattle.	Horses.	Swine.		Sheep.	Goats.
Alabama.....	2	59					
Arizona.....	1,570	360,011	6,509	637	160	364,853	6,604
Arkansas.....	452	4,591	80	494	15	49	230
California.....	3,021	208,683	7,019	3,324	551	606,526	13,286
Colorado.....	4,455	380,460	9,503		872	1,044,208	1,322
Florida.....	23	787		6			
Georgia.....	48	440	14	15	3	23	
Idaho.....	4,213	190,608	13,794		1,093	1,758,877	
Michigan.....					2	91	
Montana.....	2,865	170,674	16,524		521	835,224	134
Nebraska.....	54	12,757	713				
Nevada.....	502	77,432	4,320		109	390,753	
New Hampshire.....	15	158	12				
New Mexico.....	2,020	174,979	5,309	467	576	440,302	39,051
North Carolina.....	186	1,157	52	56	5	82	
Oklahoma.....	57	3,304	294				
Oregon.....	2,478	162,004	10,066	88	537	753,418	52
South Dakota.....	786	38,185	3,184		8	12,200	
Tennessee.....	47	431			5	75	
Utah.....	7,249	172,246	9,914	67	1,641	811,510	110
Virginia.....	273	2,614	15		1	6	
Washington.....	1,031	30,743	2,318		196	236,307	
Wyoming.....	1,181	143,204	3,611		329	680,670	
Total.....	32,528	2,135,527	93,251	5,154	6,624	7,935,174	60,789

Classification of grazing permits by grades, season of 1919.

Cattle, horses, and swine.			Sheep and goats.		
Grades (number of stock).	Number of permits.	Number of stock.	Grades (number of stock).	Number of permits.	Number of stock.
1 to 40.....	21,181	353,634	1 to 1,000.....	3,815	1,452,429
41 to 100.....	6,625	442,873	1,001 to 2,500.....	2,114	3,233,131
101 to 200.....	2,590	377,483	2,501 to 4,000.....	382	1,223,760
Over 200.....	2,132	1,059,942	Over 4,000.....	313	2,086,643
Total.....	32,528	2,233,932	Total.....	6,624	7,995,963

COMPARISON OF GRAZING FEES CHARGED UPON THE NATIONAL FORESTS WITH CHARGES FOR EQUIVALENT PRIVILEGES ON OTHER LANDS IN THE SAME GENERAL LOCALITY.

Data secured in 1915 upon 900 separate transactions, involving the use of Indian reservations, Reclamation Service withdrawals, and State, railroad, and private lands for granting purposes, demonstrated that the charge for grazing cattle and horses within the national forests was only one-third and the charge for sheep and goats only two-fifths of the charge for the lands above mentioned. The lands leased were located mainly within or near the national forests and the character of the range was much the same.

The average charge per head of stock per month was as follows:

	National forests.	Other lands.
	<i>Cents.</i>	<i>Cents.</i>
Cattle.....	3.9	11.7
Horses.....	5.2	15.7
Sheep.....	1.4	3.6

Upon the basis of these data, the charge for grazing upon the national forests was doubled, it being conceded that the prevailing conditions justified a reduction of one-third from the prices paid for the use of private lands where greater freedom was enjoyed in the use of the land and the tenure of the lease was more certain.

STATEMENT OF NUMBER AND CHARACTER OF SPECIAL-USE PERMITS, NUMBER OF CHARGE PERMITS, NUMBER OF FREE PERMITS, BASIS OF CHARGES, SCALE OF RATES FIXED BY REGULATION, AND TOTAL RECEIPTS FROM SPECIAL-USE PERMITS.

At the present time there are outstanding 23,878 special-use permits authorizing the use of national-forest lands for various purposes. Twelve thousand two hundred and five of these are issued without charge, and for 11,673 a charge is made. Among the purposes for which free permits are granted are the following: Agricultural use of lands where the user has a preference right of entry under the forest-homestead law; for schools, churches, and cemeteries; cabins for the use of miners, prospectors, stockmen in connection with grazing permits; trappers of predatory animals; corrals, stock tanks, shelters, and drift division, or other fences required for the proper management of a special-use permittee's stock where the permittee does not get control of range to the exclusion of other stock entitled to its use; dipping vats where no toll is charged; saw mills sawing principally timber obtained from the national forests; conduits, dams, reservoirs, pumping stations, or any water-development project for watering stock, irrigation, mining, municipal, or domestic water supplies; roads and trails, logging railroads, flumes, tramways, inclosures, and other improvements necessary to the manufacture of timber obtained principally from the national forests; telephone lines where the free use of the line is given the Forest Service in connection with the administration of the forest; telegraph lines where the Forest Service has a free permit to string telephone lines on the telegraph poles; sewage systems; fish hatcheries; and public uses by any department or branch of the Federal or State Government, including municipalities, where no profit is to be derived from such cases.

In making a charge for permits the charge is based upon a fair ground rental of the area involved, taking into consideration the purposes for which the land is used. Accessibility is an important factor. A resort site at a high elevation where climatic conditions prevent its use for nine months each year, other conditions being the same, is charged a lower rental than a site which is used for a longer period. For the guidance of forest officers in making charges on the principal uses, the following schedule has been authorized by regulation:

Kinds	Rates per annum.	Explanation.
Agriculture and cultivation.	25 cents to \$3 per acre. Not less than \$2 for any permit.	Not to exceed 160 acres to any one permittee. (Free to preferred applicants under the act of June 11, 1906.)
Apiaries.....	Minimum \$10, and 10 cents per hive for each hive over 100.	1 to 3 acres. Hives to be counted in April and payments due May 1 each year. Proportionate charges made for fractional years.
Barns, garages, and stage stations.	\$5 to \$25, and up.....	2 acres or less (stage stations without hotel features).
Dipping vats (toll vats).....	\$10 to \$20, and up.....	2 acres or less. (See (f) Reg. L-32.)
Fish hatcheries (commercial).	\$10 to \$50, and up.....	2 to 40 acres. (See (p) Reg. L-32.)
Gravel.....	5 cents to 10 cents per cubic yard, not less than \$2 for any permit. Special rates on area basis.	(See (n) Reg. L-32.)

Kinds.	Rates per annum.	Explanation.
Hay cutting.....	25 cents to \$2 per acre. Not less than \$2 for any permit.	
Hotels and resorts.....	\$25 to \$250, and up.....	1 to 10 acres. Not to exceed 5 acres under term permits.
Limekilns.....	\$10 to \$25, and up.....	1 acre.
Oil and gas pipe lines.....	\$5 per mile or fraction thereof. No permit less than \$5.	
Pastures.....	4 cents to \$1 per acre. Not less than \$2 for any permit.	Not over 320 acres to any one permittee. ¹ (Charge is in addition to regular grazing fee.)
Railroad and trolley lines.....	\$5 per mile or fraction thereof. No permit less than \$5.	(See (k) Reg. L-32.)
Residences.....	\$5 to \$25.....	1 to 5 acres, depending on local conditions.
Sawmills.....	\$10 to \$200, and up.....	1 to 10 acres. (See (h) Reg. L-32.)
Slaughterhouses.....	\$10 to \$25, and up.....	1 to 3 acres.
Stores and similar enterprises.....	\$10 to \$50, and up.....	1 to 5 acres, depending on local conditions.
Tramways (aerial).....	\$5 per mile or fraction thereof. No permit less than \$5.	(See (k) Reg. L-32.)
Theaters, billiard halls, bowling alleys, etc.	\$10 to \$50, and up.....	1 to 5 acres, depending on local conditions.

¹ The limit of 320 acres for pastures shall be observed in all cases except where the applicant holds a permit to graze more than 200 head of cattle or their equivalent in other stock, in which case an area of 1 acre for each head of stock in excess of 200 may be allowed; provided, however, in Arizona and New Mexico 320 acres may be allowed for 100 head of permitted cattle or their equivalent in other stock, and 2 acres may be allowed for each head in excess of 100.

It will be noted that the minimum, and in some instances the maximum, charge is fixed. Particularly is this true with respect to agricultural uses and summer-home uses. As to the latter, it is considered desirable to promote this use and, therefore, to assure the permittee at the time he makes his improvements what the maximum charge may be.

The total receipts from such permits or leases for the fiscal year ending June 30, 1919, amounted to \$136,112.56.

SPECIAL PRIVILEGES GRANTED TO SETTLERS AND HOME BUILDERS IN OR NEAR THE NATIONAL FORESTS.

Free use of timber.—Under authority of the law providing for the creation of national forests, the Secretary of Agriculture has issued regulations providing for the free use of timber by settlers and home builders in the vicinity of the national forests. During the past fiscal year timber having a value of \$113,117 was given away under these provisions. Usually the settler is limited to \$20 worth of timber for his own use each year. Under somewhat similar provisions of law settlers may take for their own use not to exceed \$50 worth of timber from public lands outside the national forests.

Saw timber at cost.—Under the provisions of special legislation, the Secretary of Agriculture is directed to sell at cost to homestead settlers and farmers, for domestic use, timber in any quantity. Where the settler has already obtained his quota of free material for the year, or wishes timber of a character not obtainable under free use, he may purchase it under this regulation. The average cost to the settler is about 75 cents per thousand feet board measure, or 25 cents per cord. The value of timber sold at cost to settlers under this law during the year ending June 30, 1919, was \$42,276 greater than the amount actually received by the Government.

Free grazing of milch or work animals.—Under the Forest Service regulations milch, work, or other animals used for domestic purposes, not exceeding a total of 10 head, owned and in use by bona fide settlers residing in or near a national forest, require no permit. In addition, no charge is made to the settler for the privilege of driving his stock across national forest lands in order to reach his own holdings. The aggregate number of animals thus grazed entirely free of charge amounts to about 150,000 head.

Settlers given preference in issuing grazing permits.—In the issuance of grazing permits first preference is given to settlers in or near the forest. If he is a new settler and the forest is already stocked, the larger permittees are reduced in order to make room for him, and all men in this class are allowed to build up their herds to a reasonable protective limit, proper reductions being made in other permittees to permit such increases. The settler

within the forest is, under certain conditions, permitted to enclose adjoining national forest land in order to secure protection in the use of near-by range. For this privilege an acreage charge is made, but the permittee thereby secures a valuable special advantage over other stockmen not so fortunately situated.

Free water and free ditches.—Under special legislation settlers in or near the forest have the right to construct and maintain, free of charge, irrigation dams, reservoirs, and ditches over and through national-forest land or public land. The acreage of forest land so used is considerable, and the ditches run into thousands of miles. The values involved run into the millions.

Free use of roads, trails, and public-service conveniences in the national forests.—The act authorizing the creation of the national forests provides specifically that they shall be at all times open to free access to everyone in pursuit of lawful purposes. A great deal of money has been expended by the Federal Government in the construction of roads, trails, and bridges within the national forests. These are, of course, free to everyone, but, after the Government, the local settler is the chief beneficiary. In addition, so far as it can be done without interfering with Government business, the Forest Service has placed its telephone facilities at the service of the local public. Sometimes no charge is made on account of cooperative service rendered. In other instances the charge is nominal. In either event the saving in time and labor to the settler is very substantial.

Basis for the foregoing privileges.—It will be seen that the free use of timber, the sales of saw timber at cost, free use of land for irrigation reservoirs, free rights of way for ditches, and free use of roads, trails, and bridges have all been specifically authorized by Congress. The limited amount of free grazing permitted settlers and the liberal policy in the use of telephone facilities are based upon regulations and instructions which are believed to be in harmony with the policy Congress desires to pursue toward settlers, as expressed in the foregoing provisions. Considering the hardships and privations which are, under most favorable conditions, encountered by the homemaker, it is believed that a liberal policy is both wise and necessary.

BASIS OF CHARGES FOR THE USE OF WATER-POWER SITES.

It has been the primary purpose of the Forest Service in collecting rental charges for those national-forest lands which are used for the purposes of power development to reimburse the Government both for the costs incurred in administering the water power business and for such share of the general costs of administration, protection, and improvement of the national forests as might reasonably be assigned to this class of use. The basis upon which the charges are collected is the "power capacity" of the site; that is, the number of horsepower which can be continuously produced by plants so designed and constructed as to make the best practicable utilization of the site under the physical conditions which exist at the site and under the market conditions which exist in the district to be supplied. Such a method determines the relative value of different sites rather than the actual commercial value of any particular site.

The rate of charge begins at 10 cents per horsepower per annum and increases by annual increments of 10 cents per horsepower to a maximum of \$1. The total collected for the fiscal year ending June 30, 1919, was \$72,322.06. This amount represents an average of approximately 25 cents per horsepower capacity of the sites now developed. Since only a small proportion have been in operation long enough to pay the full charge of \$1 per horsepower, the annual receipts would increase for several years to come even if no new plants were put into operation.

When permits are issued for transmission lines only the charge is \$5 per mile per annum. No charge is made for projects of 100 horsepower capacity or less, for those which are used exclusively as auxiliaries to irrigation works owned and operated by the permittee, or for those developed and operated by municipalities for municipal purposes. For both these last-named classes the Forest Service is following the policy laid down by Congress in the acts of 1891 and 1905, under which easements for irrigation and municipal works may be obtained free of charge.

The Forest Service has adopted the above practice for two reasons: First, it has believed it more desirable in the public interest that the unused water powers should be developed and put to use than that revenue should be secured for the

Federal Treasury. Hence, instead of making charges which would be passed on to the consumer in higher rates for power purchased, it has made requirements which would result in direct benefit to the ultimate users of power, such, for example, as complete development of site, continuous operation of plant, maintenance of an approved accounting system, submission of rates and of conditions of service to regulation by public authority, and sale upon application and upon a reasonable valuation to any State or municipal agency having authority to acquire and operate power plants. Second, the Forest Service has never been in a position to employ a force and to incur the expense which would be necessary if the rentals to be charged were to be determined upon the basis of returning to the Government the actual commercial value of each individual site under permit. Moreover, from the trend of public discussion during recent years, both in Congress and outside, it apparently is the desire that our water powers should be developed as rapidly and as extensively as possible, and it is believed that a policy of disposing of them primarily for revenue purposes would seriously interfere with such development.

The CHAIRMAN. We will take up grazing charges next.

Mr. GRAVES. I will ask Mr. Potter to discuss that phase.

The CHAIRMAN. We will be pleased to hear Mr. Potter.

STATEMENT OF MR. A. F. POTTER, ASSOCIATE FORESTER, FOREST SERVICE, DEPARTMENT OF AGRICULTURE.

Mr. POTTER. Mr. Chairman, the average rate for cattle grazing this year is \$1.20 a head for the entire year. Where the grazing is for only a few months the rate is one-tenth of the annual rate per month. The average period during which cattle have been on the forests this year is six months, so that the average amount collected is 72 cents per head. The sheep rate is 25 per cent of the cattle rate.

The CHAIRMAN. What did you say the average rate was?

Mr. POTTER. Seventy-two cents per head for six months. The sheep rate is 25 per cent of the cattle rate. The average period the sheep have been on is about four months, so that the average fee collected from sheep grazing is about 12 cents per head.

The CHAIRMAN. How about horses?

Mr. POTTER. We charge 25 per cent more for horses than for cattle, and the time that they are on the forest is about the same as for cattle, so that the average rate collected for horses would be about 90 cents per head.

The CHAIRMAN. Those are the only ones?

Mr. POTTER. Yes, sir; the number of swine is very small, so that that doesn't cut much figure. Before the forests were turned over to the Forest Service, and on the public lands before they were included in the forests, no charge was made for grazing, and grazing is allowed free on the public lands yet. So that at first, in fixing the charge for grazing, only a nominal rate was charged which would be sufficient to reimburse the Government for the cost of administration and protection of the ranges. In the first few years a rate was established which averaged 48 cents per head per annum for cattle. This was gradually increased to an average rate of 60 cents in 1916. It was felt as the management was improved and time went on that we should get a return commensurate with what it was actually worth; so during the years 1915 and 1916 a very careful study was made of the charges for grazing on other lands similar in character to those within the national forests, such as railroad lands, State lands, and lands in private ownership. The result was to find that the average rate paid for grazing on these other lands was about three times what we were charging on the national forest lands.

But there are restrictions in the use of the national forest lands which make them not worth as much as the grazing on private lands. To begin with, the permits are all revokable without notice. In case damage is being done to the forests we reserve the right immediately to cancel the permit and remove the stock.

Mr. McLAUGHLIN of Michigan. Do you find it necessary to do that in very many cases?

Mr. POTTER. It isn't necessary to do that very often during the season, but frequently at the end of a season. We require the stockmen to cooperate with us in fire fighting, in the construction of improvements, and things of that sort.

Mr. McLAUGHLIN of Michigan. What do you mean by cooperating with you in fire fighting? Do you make them join your forces and fight the fire without pay?

Mr. POTTER. We make them join our forces without pay in many instances. If we retain them any length of time on that kind of work we remunerate them the same as others, but where it is merely temporary assistance, for a day or two, there is no compensation.

In addition to the uncertainty regarding tenure of the permit, because it is revocable without notice, there are other features which in the estimation of the stockmen lower the value of the grazing privileges in comparison with those on private lands. First of all, the number of stock is restricted to the number which in the opinion of the forest officers may be grazed without damage to the forest, which is often a smaller number than would ordinarily be placed upon private lands. Again, it is often necessary to shift stock from one part of the forest to another or even from one forest unit to another. The Forest Service reserves the right to make such changes from year to year. Naturally, a stockman wishes to use the same range year after year. Important also are the restrictions relating to the time when stock is allowed to enter the forest and the dates when the animals must be removed. Such restrictions are necessary not merely in order to protect the range but also to prevent injury to the forest and to watersheds. Still again, the permits are subject to reduction from year to year to make room for new applicants, particularly for settlers who live near the national forests. These reductions apply primarily to the larger permittees.

For the matter of improvements the stockmen pay for a great many themselves. On the whole, it was considered that the restrictions which were placed upon the grazing of stock on the forests reduced the value about one-third below the rate charged on other lands. So the announcement was made in 1917 that the rates on the national forests would be doubled. That naturally brought a protest, and Secretary Houston gave full hearings to representatives of the live-stock associations, both last winter and the winter before. The final result was a decision that for 1918 only a 25 per cent increase over the former rate would be made and that further study would be made of the matter. This was done, and for 1919, this year, the charge proposed having been found to be justified, double the former rate was charged; so there is an increase in receipts of \$883,347.91 over what was collected in 1918.

Uncertainties in regard to the charges for grazing privileges have tended to unsettle many persons in the stock industry, particularly smaller men, who hesitate to assume obligations in improving ranch

property—in other words, in building up their business—when there is likelihood of sudden changes in the rate of charge. To reduce these uncertainties, announcement was made that it would be the policy to make readjustments periodically—in five-year periods rather than from year to year. In addition, where the conditions on the forest are sufficiently settled as to the number of stock which can be allowed without injury to the forest or watersheds the issuance of five-year permits was authorized, and permits have been issued on this basis to a large portion of the permittees. These permits require the payment of a like amount in fees during the five-year period, but the permittees have been informed that at the end of this period the rates will be adjusted, either up or down, in accordance with values at that time.

It is not contemplated that there will be any change in the base rate up or down between now and 1923. In view of the fact that we crowded the national forest ranges to the limit last year in order to take care of all the stock we possibly could as a war emergency, we do not contemplate that there is any probability of increasing the number of stock within the next few years, and therefore do not look for any material increase in the receipts from grazing. The amount collected this year was \$2,609,169.85. That will be about the amount we may expect to get from the grazing next year.

The CHAIRMAN. Do you consider the fee charged a reasonable one?

Mr. POTTER. Yes, sir; the fee, in my opinion, is reasonable.

The CHAIRMAN. Should more be charged?

Mr. POTTER. In the long run, yes; as the value of the ranges are increased through improvements.

The CHAIRMAN. I am speaking of the present rates. Are they not too low at the present time?

Mr. POTTER. Of course, there has been a very marked increase in the value of the leases on private grazing lands in the past two years due to war conditions and the drought. If our fees were to be based on the present exceptionally high values, they are too low.

The CHAIRMAN. I understood you to say the charges had been increased materially.

Mr. POTTER. Yes, sir; they have. That was based—

The CHAIRMAN. How much?

Mr. POTTER. They are double what they were in 1916.

The CHAIRMAN. They average about twice what they used to?

Mr. POTTER. Yes, sir.

The CHAIRMAN. They average about 72 cents now?

Mr. POTTER. Yes, sir.

The CHAIRMAN. They have been increased about 36 cents?

Mr. POTTER. Yes, sir; since 1916.

The CHAIRMAN. The average price of cattle has increased, say, from \$40 to over \$100, has it not? That depends on the ages of the cattle, of course; but a steer then selling for \$40 is now worth at least \$100.

Mr. POTTER. Probably so; putting it on a range cattle basis, they have increased from a value of about \$30 to about \$50 or \$60 per head.

The CHAIRMAN. In my section of the country the cost of pasture has increased about \$2.50 to \$8 a head.

Mr. POTTER. Yes, sir. I presume you refer to the cost of summer pasture.

The CHAIRMAN. Do you consider that the present charge is a fair one? Pasturing in my section of the country covers only about five or six months, whereas in the western range section of the country it is 12 months, and if less than 12 months deduction is made.

Mr. POTTER. If the present prices are continued it would be very much less than we should get.

The CHAIRMAN. Are you getting what it is worth at the present time?

Mr. POTTER. Not on the basis of the present inflated prices.

The CHAIRMAN. Why do you not get what it is worth? Who determines this?

Mr. POTTER. We are trying to stabilize range conditions and do not believe the fees should be readjusted on the basis of the present abnormal conditions.

The CHAIRMAN. You were speaking about the fee charged on private lands. Do you fix the price for private lands as well as your own?

Mr. POTTER. No, sir.

The CHAIRMAN. They follow your price?

Mr. POTTER. Decidedly not.

The CHAIRMAN. Are there any cattle grazing on privately owned lands?

Mr. POTTER. Yes, sir.

The CHAIRMAN. Any considerable number?

Mr. POTTER. Yes; there is a very considerable number.

The CHAIRMAN. Who owns the land?

Mr. POTTER. They are owned by the individual stockmen, the States, and the railroad companies.

The CHAIRMAN. If they own the land they do not pay any grazing fee, do they?

Mr. POTTER. That is true; they pay the taxes on the land and things of that kind.

The CHAIRMAN. But where a fee is paid?

Mr. POTTER. Where they lease the land to other parties—

The CHAIRMAN. Is there much leasing of lands to other parties?

Mr. POTTER. I have no data on the acreage.

The CHAIRMAN. You say considerable amounts?

Mr. POTTER. Yes; there is a considerable amount. How many million acres I do not know.

The CHAIRMAN. There are large tracts held by individuals?

Mr. POTTER. I don't know of any that you would call very large tracts, except in Texas; of course, that is all under private ownership.

The CHAIRMAN. That isn't in forests. We are speaking of the western country.

Mr. POTTER. The areas which are leased are comparatively small, with the exception of some of the land grants in New Mexico.

Mr. HUTCHINSON. You said the States lease theirs. What do they charge?

Mr. POTTER. They are usually leased on an acreage basis. They usually charge about 5 to 6 cents an acre. Last year the State of Arizona leased 6,000,000 acres at an average rental of $3\frac{1}{2}$ cents per acre; New Mexico leased 9,600,000 at an average of 6 cents; and Colorado, 2,000,000 acres at an average of 10 cents per acre.

The CHAIRMAN. How many acres to a head?

Mr. POTTER. The average would be about 30.

The CHAIRMAN. That would be \$1.50.

Mr. POTTER. About \$1.80, at the rate of 6 cents.

The CHAIRMAN. For cattle?

Mr. POTTER. Yes, sir.

The CHAIRMAN. That would be about three times as much as you are charging.

Mr. POTTER. About twice as much, if the land was used for only six months.

The CHAIRMAN. Or a little more than double?

Mr. POTTER. Yes.

The CHAIRMAN. Why are you not entitled to as much as the States?

Mr. POTTER. It is just the difference in the use of the land. The States, as a rule, place no restrictions whatever in the handling of the stock on their lands. They allow the stockmen entire freedom as to the way the stock shall be handled.

The CHAIRMAN. Do the States make restrictions as to the number that shall be put on a given area?

Mr. POTTER. Not that I know of. They simply leave it to the stockmen to use the land in accordance with their judgment.

The CHAIRMAN. You said your rates were based on the rates charged by private individuals, and then you said that no considerable amount was being leased to other parties. Why is that a fair basis to be used in making your charges?

Mr. POTTER. Our charge was based on the prices paid on about 3,800,000 acres of lands of similar character to those in the national forests, the greater part of which was owned by the States and the railroad companies.

The CHAIRMAN. It should be based upon good judgment and common sense, what is fair and right.

Mr. POTTER. Certainly.

The CHAIRMAN. Upon investigation, do you believe you are charging what it is worth at the present time?

Mr. POTTER. We are not charging the full present market value.

The CHAIRMAN. What is, in your judgment, a fair reasonable charge? You charge, according to your statement, about \$2.26 for grazing for three years a steer that sells for over \$100.

Mr. POTTER. I consider that we have been handling this in the right way. If, however, the values arising from the present abnormal conditions are to be the basis of charge, of course the present fees would be doubled.

The CHAIRMAN. Congress has been criticized for not charging a reasonable fair rate for grazing. The present rate does not seem to me fair and just; it seems to me that the rate of \$2.26 for grazing for three years a steer that sells for over \$100 is not a fair and reasonable charge. I appreciate also that you do not have full jurisdiction over the matter probably others have determined what the rate shall be. I do not bring this up here to embarrass you or anybody else in the department, but we ought to have the facts as to the amount charged and an estimate as to what would be a reasonable, fair charge.

Mr. POTTER. The establishment of an equitable charge for the grazing privileges must take into consideration the entire public objectives of the national forests and their use. In the beginning no charge at all was made. The stockmen had always enjoyed free use of the public grazing lands and still are allowed to use those outside the national forests free of charge and without restriction. There had been abuse of the lands by overgrazing and many serious conflicts between the owners of different kinds of stock. When the Forest Service took charge it undertook to correct these evils. The number of stock allowed on each range was limited to what could be grazed without damage to the forests or watersheds, and in making the necessary reductions the cuts were made on the permits of the larger owners. The range was divided fairly between the owners of cattle and sheep and, so far as possible, each was allowed to use those portions best adapted to his kind of stock. This was no easy job, as it involved not only the settlement of hundreds of controversies but satisfying the people that they had been settled right. There also has been a constant demand from new settlers for a share in the grazing privileges. More than 10,000 such applications have been approved during the past six years. We are now protecting 30,000 small owners in the use of the range needed for the maintenance of their homes and giving them a preference in renewal of permits. The large owners were occupying the range when we took charge and their permits are being gradually reduced. We have encouraged the stockmen to adopt systems of management which would improve the range conditions and through the organization of over 400 local live-stock associations have secured their hearty cooperation. We have felt that stopping damage to the forests, improving conditions on the watersheds, bringing about orderly use of the ranges, and protecting settlers in establishing their homes was of more importance to the Nation than the number of dollars collected in fees, and I believe that this should continue to be our ideal.

The CHAIRMAN. Thank you, Mr. Potter. We will now recess.

(Thereupon, at 5 o'clock p. m., the committee recessed to meet Thursday, December 18, 1919, at 10 o'clock a. m.)

COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Thursday, December 18, 1919.

The committee met at 10 o'clock a. m., Hon. Gilbert N. Haugen (chairman) presiding.

The CHAIRMAN. The committee will come to order. You may proceed, Mr. Graves.

FOREST SERVICE—Continued.

**STATEMENT OF MR. HENRY S. GRAVES, FORESTER AND CHIEF
OF THE FOREST SERVICE, DEPARTMENT OF AGRICULTURE—
Continued.**

Mr. GRAVES. We are considering item 240, page 127, of the bill, "for the selection, classification, and segregation of lands within the boundaries of the national forests that may be opened to homestead settlement," and so on.

The CHAIRMAN. You suggest some new language there.

Mr. GRAVES. This is the authority which we have for the classification of lands, the location of agricultural land, and the determination of which lands ought to be permanently held in the forests. We also have authority, in the case of several forests, under special acts, to make exchanges of land with owners whose land lies interlocked with the national forest land. Such exchange legislation has already been enacted in the case of six forests.

We have now the authority to survey lands which are opened up for agricultural settlement. The new language is a request for similar authority to cover the exchange of land. An illustration of where this is needed immediately is in Florida. The Florida national forests are badly cut up with private holdings, due to an old railroad grant. This land has passed long since into individual ownership. Exchanges are needed to consolidate the Government lands into a solid body for better handling.

The CHAIRMAN. What does that exchange involve? Is one solid tract of land exchanged for another, or is it just small tracts here and there?

Mr. GRAVES. In portions of the Florida forest, half the land, the alternate sections, are owned privately, and we owned the other sections. Such a condition makes a very difficult problem of administration and protection. By effecting an equitable exchange, our lands can be consolidated in exchange for other lands on the basis of actual value.

The CHAIRMAN. The lands are to be appraised?

Mr. GRAVES. The lands have to be carefully appraised, the timber appraised, and an exchange worked out on a basis of equal values in accordance with the terms of the law. In many cases there are no surveys which can be accepted by the General Land Office, and title can't pass. The requested authority would enable our engineers to survey those lands under the general direction of the General Land Office and thus expedite the exchange.

Mr. McLAUGHLIN of Michigan. Mr. Graves, what check is there on that exchange; is there any except the honesty of your local inspector?

Mr. GRAVES. There are several checks in the field and finally a check in my office. In the first place, there is a field examination to determine the amount of timber by a careful strip cruise. The work is all checked up by several persons along the line, so that it is almost impossible not to have an honest check.

Mr. McLAUGHLIN of Michigan. The appraisal is made by the field appraisers and then it is checked in your office?

Mr. McKINLEY. With regard to this checking up, is it sent here to Washington to be checked up?

Mr. GRAVES. We first have our supervisory officers in the field make a check. There is usually a check estimate made from the angle of the logging engineer. Then all of the data, when they are assembled, are worked over by the timber-sales force in the district office and afterwards by the inspectors in my own office, so that it has as complete a check as we could give it within our organization without spending an undue amount of money.

Mr. McKINLEY. I am glad to hear you say that, as I was wondering whether it would be possible to have a collusion between the men in the service and the men who wanted to trade.

Mr. GRAVES. I doubt very much whether that would be possible. I think we have got about as thorough a check as is possible now.

Mr. VOIGT. Your estimates are made with reference to the timber on the land?

Mr. GRAVES. To get the timber and the valuation.

Mr. VOIGT. Do they go into the question of valuation extensively?

Mr. GRAVES. They determine the basis of the quantitative and qualitative values; then our logging engineers go in and check up the location, the cost of operating, what it would cost to build a railroad or other improvements, and thus arrive at the stumpage values.

Mr. VOIGT. But the transfer isn't based either on the amount of timber, or upon the country, but upon values?

Mr. GRAVES. It is based upon values.

Mr. VOIGT. In other words, you might have one tract of 100 acres that would be worth as much as another tract with a thousand acres?

Mr. GRAVES. Yes, sir.

Mr. VOIGT. In determining the value of the timber, you take into consideration the quality of the stumpage and also the cost of operations?

Mr. GRAVES. Yes; and the land itself in the different localities might have different values. Very rocky land in the mountain sections, at high elevations, certainly wouldn't have the value of lands down lower which have much productive soil.

Mr. VOIGT. The policy of your department, then, is not to make trades for the purpose of consolidating bodies, but rather to consolidate the holdings as a protective measure?

Mr. GRAVES. Particularly for the benefit of the public in having a solid body of land for the better protection of the timber, control of the use of the land, and for utilization of the resources.

Mr. VOIGT. You believe that this change in language is necessary for the purpose of allowing you to do that work?

Mr. GRAVES. We have the authority to make the exchanges on six individual forests now, but we have no authority to make actual surveys, which is the basis of the transfer of title.

Mr. VOIGT. How can you make changes without that provision?

Mr. GRAVES. Because some of the private lands are still held by the owners in units of the subdivisions of the public surveys. There it hasn't been necessary to make new surveys. But where there have been subdivisions cut up in two or three parts, there must be a new official survey. Otherwise you would have to wait until the General Land Office was able with its own organization to make the survey. This might be quite a long time. The new authority requested would expedite the passing of title.

The CHAIRMAN. Are these exchanges entirely within the forests or are there exchanges outside?

Mr. GRAVES. They are all within the boundaries of the forests, except in one where authority was given for going a short distance outside. In that case Congress designated certain areas within which exchanges could be made outside, but all others are within the boundaries of the forests.

Mr. McLAUGHLIN of Michigan. Do you mean that the law describes a particular piece of property that might be acquired?

Mr. GRAVES. No; it simply described a general area within which the exchanges may be made.

The CHAIRMAN. In how many cases were lands offered for exchange?

Mr. GRAVES. There have been a good many suggestions for exchanges, many of them in the forests where at the present time there is no legal authority for making them.

The CHAIRMAN. I have reference to these six forests.

Mr. GRAVES. Within the six forests we have made, as I recall it, five exchanges.

The CHAIRMAN. Are they large or small tracts?

Mr. GRAVES. They run from 160 acres to about 30,000 acres.

The CHAIRMAN. Is this being done in the interests of the forests?

Mr. GRAVES. Entirely for the interests of the forests.

The CHAIRMAN. Was that the purpose of the act?

Mr. GRAVES. The purpose of the act was to enable the consolidation of the forests where there is a large amount of interior holdings which makes protection and administration difficult and expensive.

The CHAIRMAN. I wish you would point out how appraisals are made.

Mr. GRAVES. Appraisals are made in much the same way as we appraise the timber for sale.

The CHAIRMAN. Is that done by your men?

Mr. GRAVES. By our own men.

The CHAIRMAN. They check up on that?

Mr. GRAVES. It is thoroughly checked up. I do not know how we could get it more thoroughly checked up without spending an undue amount of money.

Mr. McLAUGHLIN of Michigan. You may remember that last spring I asked you about an exchange proposition involving some outside property in California. Inquiry has been made of me about it; do you recall that?

Mr. GRAVES. Yes, sir; I recall it.

Mr. McLAUGHLIN of Michigan. Has anything been done about that? Is there any prospect of that being taken up?

Mr. GRAVES. That proposition was in connection with a national park.

Mr. McLAUGHLIN of Michigan. Yes.

Mr. GRAVES. That particular area which you had in mind comprised some redwood, on what is called the Redwood Mountain, within the Sequoia National Forest of California. It is proposed to establish a national park near there. There was a suggestion for acquiring this land from the private owners on Redwood Mountain with a view of adding it to the national park. Neither the Interior Department nor the Forest Service wishes to extend the boundaries of the proposed park as far west as Redwood Mountain, so that I think the question is not going to be raised.

Mr. McLAUGHLIN of Michigan. The status, so far as that land is concerned, is the same as when you wrote me and when I conferred with you?

Mr. GRAVES. Yes. We do not think that it is wise to make an exchange there.

The CHAIRMAN. What progress is being made as to the segregation of land within the boundaries of the forests?

Mr. GRAVES. The progress has been very rapid. Formerly the classification and the segregation of land for agricultural purposes was made primarily by individual tracts. Then we undertook to classify the forests as a whole. Where there were considerable quantities of agricultural lands such areas were eliminated from the national forests. They could then be occupied rapidly.

Mr. McLAUGHLIN of Michigan. There are two lines of that work, aren't there, Colonel; one where the application for patent is made, and another under the general law requiring you to make a general survey of the forests for the purpose of determining the lands more suitable within them for forests?

Mr. GRAVES. Yes, sir; we have expedited the first procedure by the second; that is, by classifying the lands and segregating them in bodies.

Mr. McLAUGHLIN of Michigan. There are still considerable to be classified?

Mr. GRAVES. Yes; but we have gone on with our classification so far ahead of the applications for individual tracts that the segregation is almost entirely taken care of through classification.

Mr. McLAUGHLIN of Michigan. Several years ago patentees, or those who wished patents, were held up. There was a delay, of which they complained, because the land could not be examined by your service, and the Interior Department would not act until it had a report from you.

Mr. GRAVES. The matter is being cleared up very rapidly through this classification and segregation of lands. Since we began our work of boundary examinations, eliminations and segregations amounting to some fifteen to twenty million acres have been made.

Mr. McLAUGHLIN of Michigan. Before you were authorized to examine it as a whole and make segregations, there were a great many pending claims for patents in the Land Office, and I recall that we were urged to recommend large appropriations for the employment of a large number of men to survey, because it was said that your service was lagging behind the Land Office; that difficulty has been overcome, has it?

Mr. GRAVES. There were a great many claims that had been initiated, before the establishment of the national forests, under the homestead, mining, and other laws. These have by this time pretty much been taken care of.

The CHAIRMAN. The surveys, then, are practically up to date; all of those lands have been segregated, and you are fairly up with the platting and surveying?

Mr. GRAVES. We are fairly up with the platting and surveying; we have classified about 125,000,000 acres. We still have something over 20,000,000 acres to examine, a portion of this area being in Alaska. We have, however, taken up first the areas in Alaska which present the best opportunities for cultivation, with the result that we have during the past year eliminated from the Alaskan forests approximately 300,000 acres of land, thereby taking care of the most important problems of agricultural settlement.

The CHAIRMAN. What number of acres have been segregated altogether?

Mr. GRAVES. We have classified about 125,000,000 acres and have eliminated in the national forests some fifteen to twenty millions acres.

Mr. McLAUGHLIN of Michigan. There is an appropriation for the Bureau of Soils under which you and the officers of that bureau cooperate; what do you do in that connection?

Mr. GRAVES. We ask the Bureau of Soils to help us in the classification work, particularly in connection with questions on the border line between absolute forest lands and obvious agricultural lands.

Mr. McLAUGHLIN of Michigan. The Bureau of Soils acts only upon your request?

Mr. GRAVES. They act only upon our request and assign experts who join our classification force in an advisory capacity.

Mr. McLAUGHLIN of Michigan. That is for the purpose only of ascertaining the quality of the soil and its suitability for agriculture?

Mr. GRAVES. Yes, sir.

Mr. McLAUGHLIN of Michigan. Grazing also; do you ask any aid on account of grazing?

Mr. GRAVES. That question is one that would be taken care of by our regular classification.

The CHAIRMAN. The full amount of this appropriation, \$107,000, will be required?

Mr. GRAVES. Yes, sir.

The CHAIRMAN. We will take up the next item.

Mr. GRAVES. The next item is on page 128, item 241—

For fighting and preventing forest fires and for other unforeseen emergencies, \$150,000.

We have had this item in the appropriation bill, I think, for 8 or 10 years. In 1911, after the great fires of 1910, we requested the committee to give us an emergency appropriation of \$1,000,000 in addition to the item of \$150,000. This was done. The following year the \$150,000 sufficed to meet our needs, and the emergency appropriation was cut down to \$200,000. The year after that the season was again favorable and there was practically no need for drawing on the additional emergency. Congress then cut down the item still further, to \$100,000, and finally dropped it altogether, and we had only the \$150,000.

I believe the feeling of the committee was that it was best not to have an emergency appropriation in addition to the \$150,000, with the idea that, if a very unusual condition arose, it would be necessary for us to incur a deficiency and come to Congress for assistance if needed.

The experience this year has led me to repeat the request made in 1911 to have a larger emergency appropriation, and Secretary Houston has concurred in that recommendation and has incorporated that request in the miscellaneous section of the estimates.

FIGHTING AND PREVENTING FOREST FIRES.

The CHAIRMAN. Have you the number and page of the miscellaneous item?

Mr. GRAVES. That is on page 271, item 2.

The CHAIRMAN. For \$1,000,000?

Mr. GRAVES. The idea is to have one substantial fire emergency fund that would include the previously granted item of \$150,000. It has been demonstrated that an emergency fund of \$150,000 is inadequate. There are occasions when it is exceedingly embarrassing to have to incur a deficiency such as we incurred during this last spring. The fire season started very early. We had expected in the northwest districts to have to expend no more than \$8,000 or \$10,000 for fire fighting. The season broke in June and large expenses had to be incurred. It would have been very embarrassing out there were it not for the fact that some moneys were left in the national security and defense fund which had been allotted by the President to the Department of Agriculture.

The CHAIRMAN. The amount suggested is merely a guess as to the needs, is it not?

Mr. GRAVES. It is not altogether a guess. It is based on our experience during the last 10 years. We had our first big emergency in 1910, in which our deficiency appropriation was \$900,000; again in 1914, in which the deficiency appropriation was \$345,000; in 1916 the deficiency appropriation was \$57,000; in 1917 the deficiency appropriation was \$775,000; in 1918, \$650,000; and the past year is the first time that we have run over \$1,000,000.

The CHAIRMAN. About how large was the deficiency?

Mr. GRAVES. This year the deficiency was \$2,950,000.

Mr. McLAUGHLIN of Michigan. How much was placed at your disposal this year from the President's fund?

Mr. GRAVES. None in this fiscal year.

The CHAIRMAN. But in the year before?

Mr. GRAVES. In the last fiscal year, \$650,000.

Mr. McLAUGHLIN of Michigan. During the fiscal year ended June 30, 1919?

Mr. HARRISON. A million dollars was placed at our disposal. We expended \$650,000 and turned the remainder back into the Treasury.

Mr. McLAUGHLIN of Michigan. How much did you use out of that amount?

Mr. GRAVES. We used \$650,000—actually used that much—and returned the remainder to the Treasury.

Mr. McKINLEY. That was in addition to the \$150,000?

Mr. GRAVES. That was in addition to the \$150,000.

Mr. McKINLEY. I did not get it clear in my mind when it was that you used the \$2,950,000.

Mr. GRAVES. This last summer.

Mr. McKINLEY. Since the 1st of June?

Mr. GRAVES. Yes, sir; and the deficiency appropriation was passed in the fall.

Mr. McKINLEY. The \$2,950,000 was for the fiscal year ended June 30, 1920?

The CHAIRMAN. The current year?

Mr. TINCER. That appropriation was handled by the Appropriations Committee?

Mr. GRAVES. Yes, sir.

As a general principle I do not think it is a good thing for the organization to feel that a deficiency may be incurred and recognized.

I want to make it just as hard as I can for my own organization to incur a deficiency; and I think it is better, unless there are some very extraordinary conditions, like this year's—which we hope will not happen again for another 30 years—to take care of the protection of the forests from funds which have been appropriated in advance.

Mr. McLAUGHLIN of Michigan. From the time this last emergency arose how long a time elapsed before the money was made available to you?

Mr. GRAVES. I think it was about two weeks and a half.

Mr. McLAUGHLIN of Michigan. So it does not take very long?

Mr. McKINLEY. That was because Congress was in session. If Congress had adjourned the 1st of July and had not met again until December, where would you have been?

Mr. GRAVES. There would have been a very great embarrassment, just as it has at different times been an embarrassment when the appropriation bill has been delayed until well after the beginning of the fire season. I recall that that happened in one of the years when we had the special emergency item of \$1,000,000, and the appropriation bill was not passed until August. We had a hard fire situation, and had to spend at a more rapid rate than one-twelfth of the appropriation within that time. The existence of this emergency appropriation was a great benefit.

Mr. McKINLEY. Suppose there is a great fire which you have to put out and you have no money, what do you do in a case of that kind?

Mr. GRAVES. We resort to various means. Sometimes local bankers help out and provide the immediate expenses of fire fighters, who have to be paid off at once. Sometimes the local men who are hired are willing to work and let the pay go over.

Mr. McKINLEY. Take their chances?

Mr. GRAVES. Take their chances; and it isn't a good situation.

Mr. McLAUGHLIN of Michigan. Can you tell us what appropriations were made last year by the States, and by private associations, and so on, for this purpose.

Mr. GRAVES. The landowners forming the Western Forestry and Conservation Association, which covers a considerable portion of the landholders in Oregon, Washington, northern Idaho, and northwestern Montana, expended in fire protection this last summer, I understand, approximately \$800,000. They own about 15,000,000 acres and probably undertake to patrol some additional private lands which are not within the association simply in order to safeguard their own forests. I have no data on the expenditures of private owners in fire protection elsewhere. I can give you some data on expenditures by the States for last year.

Mr. McLAUGHLIN of Michigan. Each one of those States makes an appropriation, does it, so that you know how much money will be available during the coming year?

Mr. GRAVES. I think that the appropriations will be approximately the same as their expenditures for last year. I do not have the appropriations here, but can give the expenditures in a number of the States. Shall I read those?

The CHAIRMAN. You may read them if you wish.

Mr. GRAVES. Oregon spent during the fiscal year 1919 approximately \$25,000; Washington, \$37,000; Idaho, \$46,000; Wisconsin,

\$16,000. I am giving these in round figures. Minnesota expended \$56,000; Michigan, \$60,000; New York, \$117,000; Maine, \$125,000; New Hampshire, \$26,000; Massachusetts, \$32,000; New Jersey, \$20,000; and then follows a number of States with lesser amounts.

Mr. McLAUGHLIN of Michigan. There are a number of States that have no forests?

Mr. GRAVES. Yes.

Mr. McLAUGHLIN of Michigan. When this money is expended here on our national forests is it in cooperation with your department or under your direction?

Mr. GRAVES. We have a cooperative arrangement in each State. They are practically the same, but necessarily a little different in individual cases, as we have different conditions and men to work with. We are undertaking to place in operation a protective system as between the Federal Government, the States, and the private owners.

Mr. McLAUGHLIN of Michigan. You say in each State; you don't expend any money in any States where there are no national forests?

Mr. GRAVES. In the national forest States. Of course, we do not have such cooperative arrangements in all national forest States. We have not yet succeeded in getting a satisfactory arrangement in California—not nearly as satisfactory as in Oregon and Washington. Our effort is to get a cooperative system so that all are working together. I can illustrate the way it works by an incident of three or four years ago. When the Oregon and California land grant was in litigation, and there were some bills in Congress in regard to it, the railroad company declined, because of an adverse decision in one of the lower courts, to protect this land which was under dispute. There were some 2,500,000 acres, and Congress authorized the Commissioner of the General Land Office to protect those lands, and provided an appropriation of \$25,000 for that purpose. They are in Oregon scattered in different parcels; some within but mostly outside the national forests.

The Commissioner of the General Land Office requested our cooperation because they had no fire protection organization. We handled the matter by telegraph, and inside of three days those lands were under official protection because we had this organized system in which the different public and private agencies were cooperating.

Mr. McLAUGHLIN of Michigan. It would seem better, then, to have this under the direction of the Forest Service rather than under the Land Office?

Mr. GRAVES. It worked out in the end just the same way. The lands were under the jurisdiction of the General Land Office, and so the matter had to be attended to in that way.

The CHAIRMAN. You said that the banks in the country sometimes carry these expenses; how do they do it, by discount?

Mr. GRAVES. They are merely private arrangements with our officers.

The CHAIRMAN. What do the banks have to show for the money they advance? Do you issue an order on the Treasury?

Mr. GRAVES. No; in those cases they would simply advance money and take chances through our own officers; these being really pri-

vate arrangements in which our own forest officers take the responsibility.

Mr. McLAUGHLIN of Michigan. You issue an order to the men doing the work, and they take it to the banks and cash it?

Mr. GRAVES. No; in those cases there may be, for instance, a dozen or fifteen men who have to be paid off, with no Federal money available for this purpose. The supervisor would take it up with the bank and would secure an advance of the money personally.

Mr. McLAUGHLIN of Michigan. That would not be legal on your part, would it?

Mr. GRAVES. No.

Mr. TINCHER. The chairman asked you if the banks discounted the money, and I understood you to say that it was a private arrangement between the bank and your officers.

Mr. GRAVES. This is simply an emergency, where we have no money. In some cases I have known the supervisors to go to a bank and borrow money at 6 per cent, and meet that expense out of their little salaries, in order to pay off some men.

Mr. TINCHER. I do not believe that answers the question yet. Where a bank advances this money, do they discount the vouchers of the men who fight fire?

Mr. McKINLEY. They can't give a voucher; it is illegal.

Mr. TINCHER. Do they receive from the Government, when paid, any more money than their money back?

Mr. GRAVES. No, sir.

The CHAIRMAN. What is the next item?

Mr. GRAVES. The next item is on page 128, item No. 242, "For preventing and combating infestations of insects injurious to forest trees on and near the national forests, independently or in co-operation with other branches of the Federal Government, with States, counties, and municipalities, or with private owners." The amount is \$25,000.

This is a new item. I presented this same item to the committee of last year. Next to fire, the insect damage is the greatest we have in the national forests. We have to-day a serious infestation in the forests of California, in the Sierras, in the sugar-pine and yellow-pine forests. It is estimated that the yearly damage in California by this infestation is about \$235,000.

Mr. PURNELL. Is the State of California doing anything?

Mr. GRAVES. The State of California has not very many lands. Most of the lands are in the hands of private owners. There are some lands where the private owners are undertaking to combat the insects. Their lands are interlocked with our own, and the Federal Government is doing very little. Our own officers have been doing a small amount of work there each spring, but not enough to make any real progress against the infestation.

Mr. McLAUGHLIN of Michigan. Are all of the forest lands in California, outside of the national forests, held by private owners, or does the State own some forest lands?

Mr. GRAVES. The State has very little forest lands. They disposed of their grants years ago, and, while I think there are some few thousand acres in scattered tracts which are perhaps coming

back to the State for various reasons, the State has relatively little land. They have one or two parks, but very little other forest land.

Mr. McLAUGHLIN of Michigan. What is the State doing, if anything, in the way of protecting the lands they own?

Mr. GRAVES. I doubt very much whether these scattered lands are so located that they would be very much affected by this particular infestation. We also have an infestation which is giving some anxiety in Montana, near Missoula. We have still another attack in southern Colorado which is threatening a good deal of timber. In order to meet these situations this special appropriation is requested.

Mr. McLAUGHLIN of Nebraska. What species of insect is that?

Mr. GRAVES. That is a bark beetle. It is a different species of beetle from that which attacks in Montana, or the one in Oregon, or the one which attacks in the Black Hills, or the one which attacks the southern pine in the East, but in a general way its work is somewhat similar.

Mr. TINCHER. How long has that infestation been going on?

Mr. GRAVES. The insects are always in the forests. It is only when the infestations come that they do a great deal of damage. The conditions have been serious for six or eight years, but only during the last three or four years has it been spreading to large proportions.

Mr. TINCHER. You do not hope to exterminate the insects?

Mr. GRAVES. You never can exterminate them. All you can do is to restore the balance of nature between the insects and their natural enemies, which are always in the forests.

Mr. TINCHER. We have had in Kansas during the last two or three years an infestation that has done more damage than in 10 years, and that is the grasshopper, but the Government has not appropriated any money to fight the grasshopper.

Mr. GRAVES. It is possible to fight these infestations by artificial means. The work is being done in cooperation with the Bureau of Entomology. The work already done has demonstrated its effectiveness.

Mr. TINCHER. Don't you think, if we appropriate \$25,000 this year, that the committee next year will be asking for \$50,000, and the next year for \$100,000, and in 10 years from now you will be asking for \$250,000 for this item?

Mr. GRAVES. It depends on the insects, what the insects are doing. If we have more infestations, I doubt very much whether \$25,000 will fully check that infestation.

Mr. TINCHER. I think this appropriation would be like the appropriation to fight the Japanese beetle. We made appropriation to fight the Japanese beetle, on the theory that some had just been brought to this country. This is a different insect, an insect commonly in the forests?

Mr. GRAVES. This is a native insect.

Mr. TINCHER. This is a native insect in the forests. Some years it will be very prevalent, and other years not; is that the experience?

Mr. GRAVES. I am afraid this infestation is not going to die out of itself. Sometimes there are cycles of infestations by insects, but this is getting serious.

Mr. TINCHER. Have we had infestations during previous years?

Mr. GRAVES. Yes, sir.

Mr. TINCHER. And has Congress ever made any appropriations to control them?

Mr. GRAVES. There has never been any special appropriations but, as explained to the committee last year when we were discussing this subject, during several years when fire fighting did not absorb all of the \$150,000 emergency fund, a portion was used for fighting insect infestations. One year we had a severe infestation in eastern Oregon; I think some \$20,000 was expended then, and it was effective in checking the infestation.

Mr. RUBEY. Are you authorized to use that fund for that purpose?

Mr. GRAVES. It was a serious emergency, but I think it is desirable to have a fund specially set aside for insect work.

Mr. McLAUGHLIN of Michigan. Has the Bureau of Entomology an appropriation for the same work?

Mr. GRAVES. The Bureau of Entomology is investigating insects. This work would be done and the money would be expended in actual control of the work upon the public property. The Bureau of Entomology works with us; it places at our disposal the results of their investigations. This new appropriation would be used in the selection of the infested trees with broods in them, cutting them down, taking the bark off, burning up the broods, and all work of that sort.

Mr. McLAUGHLIN of Michigan. Does the Bureau of Entomology have any men there doing this work with you?

Mr. GRAVES. They have local field officers in different districts. They are presumed to give us the assistance within the national forests similar to that which is given by the Bureau of Soils.

Mr. McLAUGHLIN of Michigan. There is no duplication of work, then?

Mr. GRAVES. No, sir.

The CHAIRMAN. Is there anything further?

The next item is 243, on page 129, "for the purchase and maintenance of necessary field, office, and laboratory supplies, instruments, and equipment, \$173,600." There is an increase in that item of \$12,500. The note states that this amount is required to meet the enormous advance in the cost of many lines of supplies and equipment.

Mr. GRAVES. This increase is needed, of course, on account of the increase in the cost of those supplies.

The CHAIRMAN. Are you through, Col. Graves?

The clerk states that Mr. Ash desires to ask a hearing before the committee.

Mr. ASH. The organized lumber industry wants to be heard on the recommended increase for the Forest Products Laboratory. They believe there are good reasons why the increase recommended by the Secretary should be granted, and think that by making reference to past achievements of the laboratory they can convince the committee that the laboratory should be more adequately supported than it has been in the past. There is practically no scientific knowledge as to the properties of wood. The war program was greatly held up because of that lack of knowledge.

The CHAIRMAN. How much time is desired?

Mr. ASH. Two hours.

The CHAIRMAN. That is a long time. What is the desire of the committee?

Mr. LEE. Our limit has been an hour on nearly all these other cases.

Mr. ASH. We shall, of course, be glad to conform our statement to come within the time limit set by the committee. As stated, however, we would like two hours.

The CHAIRMAN. Will that be satisfactory, Mr. Ash, if we limit you to an hour?

Mr. ASH. Yes; that will be satisfactory; we will do the best we can in the time allowed.

Mr. CANDLER. I suggest that we give him an hour.

The CHAIRMAN. Without objection, the committee will hear Mr. Ash for one hour in connection with the Forest Service.

(Thereupon the committee recessed until the following morning.)

MORNING SESSION.

WEDNESDAY, *December 17, 1919.*

The committee met at 10 o'clock, Hon. Gilbert N. Haugen (chairman) presiding.

The CHAIRMAN. We have with us this morning a number of gentlemen interested in the appropriation for the Forest Products Laboratory, which will be found on page 130, item 244, "for investigations of methods for wood distillation and for the preservative treatment of timber, for timber testing, and the testing of such woods as may require tests to ascertain if they are suitable for making paper," \$348,260.

I might state there have also been a number of communications received in regard to this item. We will hear Mr. Ash first.

STATEMENT OF MR. ROBERT ASH, WASHINGTON, D. C., ATTORNEY, OFFICE OF COUNSEL FOR THE NATIONAL LUMBER MANU- FACTURERS' ASSOCIATION.

Mr. ASH. The National Lumber Manufacturers' Association, for whom I am appearing to urge an increased appropriation for the Forest Products Laboratory, is a federation of the lumber-producing associations of the United States, comprising in its membership the Michigan Hardwood Manufacturers' Association, Cadillac, Mich.; Northern Hemlock & Hardwood Manufacturers' Association, Oshkosh, Wis.; Northern Pine Association, Minneapolis, Minn.; West Coast Lumbermen's Association, Seattle, Wash.; Western Pine Manufacturers' Association, Portland, Oreg.; Western Forestry & Conservation Association, Portland, Oreg.; California Redwood Association, San Francisco, Calif.; California White & Sugar Pine Association, San Francisco, Calif.; Southern Pine Association, New Orleans, La.; Southern Cypress Manufacturers' Association, New Orleans, La.; Georgia-Florida Sawmill Association, Jacksonville, Fla.; and the North Carolina Pine Association, Norfolk, Va. In addition, I am appearing as representing the American Hardwood

Manufacturer's Association, Memphis, Tenn.; the Wholesale Sash & Door Association, Chicago, Ill.; the Oak Flooring Manufacturers' Association, Chicago; and the National Retail Lumber Dealers' Association, with main offices in Detroit, and with membership extending to every State in the Union.

For many years it has been commonly believed that the timber resources of the United States were inexhaustible. This, however, is not true, and year by year the supplies of standing timber are receding further and further from the principal consuming markets of the country. This decreasing supply of timber and its increasing distance from markets, together with other facts, has tended to increase the price of lumber and thereby increase the cost of goods manufactured from lumber. Some species are becoming very scarce, and substitute species must soon be found to replace them in the uses where they are now deemed almost indispensable.

The lumber and lumber-using industries well appreciate the seriousness of the present situation, and realize that steps must be taken to develop means of more fully utilizing forest products and of eliminating the waste that now characterizes nearly every step in the utilization of wood. This can be accomplished only through the determination of scientific information. There are at present losses in the forests due to the economic impossibility, under present conditions, of bringing material out at a profit. There are losses in sawing, due to a lack of knowledge of the right and the wrong way of sawing logs of various species and sizes. There are losses in drying which could be prevented if proper knowledge of methods were available. Such losses may reach as high as forty or fifty million dollars a year—all species considered. Until the Forest Products Laboratory began its investigations of the drying of wood practically all lumber was dried by rule of thumb methods. This resulted in great loss, especially in kiln drying, due to checking, warping, etc. The Forest Products Laboratory has already made great strides in teaching the lumber and wood using industries to eliminate waste by the proper drying of their material.

Wood preservation is not understood and is not used to anywhere near the extent that it should be. Only scientific knowledge can develop wood-preserving methods which are commercially practical. Along with wood preservation there is a great field for the development of fire retardance and fire-resistant construction.

Wood pulp made from spruce logs is now the basis of most newsprint paper and the supply of spruce pulp logs is decreasing, although the demand for newsprint is increasing. As a result we are now facing a paper shortage that is causing a suspension of dozens of newspapers. Only day before yesterday Congressman Anthony stated before the Post Office Committee that between 2,500 and 3,000 small newspapers faced extinction unless the newsprint situation is soon relieved. It is undoubtedly commercially practical to manufacture newsprint from other than spruce logs. Developing new sources of material for newsprint paper is one of the many phases of the experimental work of the laboratory that should be adequately provided for.

The above are common examples of the losses which occur in the manufacture and use of wood. Examples practically without limit

might be given. For instance, in vehicle making, and this concerns vehicle manufacture for farms possibly as much as all other purposes put together, high-grade hardwood is used almost exclusively. Losses in drying this wood may average 20 per cent and run as high as 50 per cent. Some of the material must be bent, as in the manufacture of wheel rims, and here again a further loss of as much as 50 per cent is not uncommon. Such loss must of necessity be passed on to the consumer. By the use of the proper methods these losses can be eliminated, with a resultant direct benefit to the consumer and to the general public in that a great natural resource will be conserved.

Practically nothing is known of the scientific qualities of wood as compared with that of other building materials. As a result much wood construction is based upon a favorable experience in the past rather than upon the true qualities of the materials being used. Large and expensive wood is therefore often used where smaller and less expensive species might be utilized with as good results. Such conditions are due to the lack of knowledge as to the properties of wood for a particular purpose, and because some species of wood are more aggressively advertised and sold than others.

The development of scientific knowledge with reference to wood can only be done by the Federal Government, because any conclusions reached by a private agency would not be given full faith and credence by the public, and because the lumber industry is divided into many regional units—each region producing a few particular species of wood. The species of the various regions are in fierce competition, and if an organization within the industry were to attempt to develop scientific knowledge as it affects lumber it would naturally limit its experiments to the particular species grown in the region, and the conclusions arrived at might be prejudiced as against the species of a competing region. At least there would be inference that such might be the case.

The general public will be best served if some impartial agency develops the facts with reference to competing species. When a man desires to build a barn or other building he should know the wood best adapted to his needs.

As spokesman for the lumber manufacturers, I appeal to you for assistance that must come only through intensive study such as that now under way at the Forest Products Laboratory. I know of no other thing that will accomplish so much in the wise use of our timber resources and which will result in so direct a saving to consumers of wood products.

The work already done has been a revelation and points to the need of work on a vastly increased scale. I therefore wish to urge upon the committee, on behalf of the lumber manufacturers, the most liberal support for the laboratory in the way of appropriations. An expenditure of \$500,000 a year will be returned to the public and to the industries concerned many times over.

Following me there will be brief statements by men who have direct contact with the laboratory and who will be able to give specific reasons why the work of the laboratory should be continued on a large scale.

In conclusion, I desire to have inserted in the record the names of some 230 trade organizations in the wood and wood-using industries

who approve the work of the laboratory and who believe it should be given an appropriation of at least \$500,000.

And as a parting word, I want to say that the laboratory has the utmost confidence of the wood and wood-using industries; the confidence that it has is rather unusual for a Government organization. The whole personnel understands the lumber industry and meets its problems with an understanding which is unusual. This applies to the director of the laboratory, Mr. C. P. Winslow; the assistant director, Mr. O. M. Butler, and the members of the staff. They are particularly high caliber men.

Mr. Chairman, I suggest that you call the other men in the order I have given them on the list I have handed you.

The CHAIRMAN. The country is particularly interested in knowing the reason for the high price of lumber, whether it is due to the lack of appropriations, or to other causes?

Mr. ASH. There are several reasons for the high cost.

The CHAIRMAN. It seems that the more money we appropriate, the higher the prices go, and that unless the supply of the forests increase the price may become prohibitive.

Mr. ASH. Of course, all commodities are advancing in price. The only comparative statistics available are those prepared by the Bureau of Labor Statistics, Department of Labor.

The CHAIRMAN. We all know that the price of lumber is five times as high now as it was a few years ago.

Mr. ASH. Lumber has increased in price less than any commodity, as the prices are reported by the Bureau of Labor Statistics.

The CHAIRMAN. A few years ago lumber was selling in my section of the country for \$11 and \$12 a thousand. Now I pay \$100.

Mr. JONES. And where it used to cost \$3 and \$4 a thousand it now costs \$30 a thousand to put it on the car.

The CHAIRMAN. Does that include the stumpage?

Mr. JONES. No; the labor cost.

The CHAIRMAN. \$30?

Mr. JONES. It is different in different localities.

The CHAIRMAN. They saw it for \$10 in my section of the country.

Mr. JONES. Now?

The CHAIRMAN. Yes. You can take it from the stump and put it through the mill for \$10.

Mr. LEE. Yes; in my section of the country you can have it sawed for \$10 a thousand.

Mr. JONES. And put through the mill?

Mr. LEE. Yes, sir.

Mr. JONES. Yellow pine?

Mr. LEE. Any kind; hardwood, or any kind.

The CHAIRMAN. How much is stumpage? Let us get at this and find out what there is in it.

Mr. McKINLEY. To start with, what is the price of lumber in Iowa?

The CHAIRMAN. Practically all kinds of lumber is over \$80 a thousand. I paid \$80 a thousand for common boards a short time ago.

Mr. McKINLEY. \$80 a thousand for fencing?

The CHAIRMAN. For common boards.

Mr. ASH. I can not give you the price in Iowa, but I have not heard of common boards selling for \$80 a thousand in any section. Straight-grain flooring might bring that amount, but not common boards.

Mr. LESHER. You will pay pretty near that for fencing lumber.

The CHAIRMAN. Can you give an estimate of the cost?

Mr. ASH. The costs vary greatly in the different regions. At present lumber-manufacturing costs are high and are constantly mounting higher, because of the constantly decreasing output. This is due to several reasons. In the South now, and for several months past, the weather conditions have not been favorable. The country is practically under water, and in the lumber country for miles and miles it is impossible to get out the logs. The mills are running at only partial capacity, and their overhead is practically eating them up. Many mills are actually discontinuing cutting.

During the war, of course, lumber prices were fixed so low that only the most efficient mills could afford to operate, and at the end of the war not over 50 per cent of the capacity of the industry was operating. As a result, much of the labor drifted away from the mills and most of it has not come back. The mills that are in a position to get out their logs are handicapped by a labor shortage. In some sections of the country especially in the South, there are labor difficulties. Recently the inability to secure coal for logging locomotives has been another factor tending to decrease production. The lumber industry produces more fuel than it consumes, but it must have coal for logging-locomotives. As I stated the weather conditions in the South are retarding operations.

On the West coast, which until recently has been the only region in the country that has been producing anywhere near normal, the weather conditions are now very severe. They are having colder weather there than they ever had and the mills are shut down because of the weather conditions.

Another factor that is holding up production (and of course the lack of supply means higher prices), is the car shortage. Mills that have lumber to ship can not get the cars. Any number of mills especially along the Atlantic seaboard have been shutting down because they can not get anywhere near their car requirements.

The CHAIRMAN. That accounts for the shortage in the supply, but why the high prices? Are they taking advantage of that?

Mr. LEE. That condition in the South has only prevailed in the last few weeks—the rain and cold weather.

Mr. ASH. All this year the weather conditions have been unfavorable.

Mr. LEE. The high water has only come within the last two or three weeks down there, and the cold weather has only been experienced in the last few weeks. Those conditions are only temporary.

Mr. ASH. We hope they will be remedied soon, of course. The labor shortage has been acute since the war and is not straightening out very rapidly.

The CHAIRMAN. Why the high price?

Mr. ASH. There are several reasons.

The CHAIRMAN. Is advantage taken of the shortage of lumber?

Mr. ASH. Of course the law of supply and demand works to a certain extent. But the mills have not been able to operate at capacity for the reasons I have stated and when running at partial capacity the costs are much greater than when they are running at full capacity. In addition, all operating costs have advanced greatly. Labor costs since 1914, have advanced over 100 per cent in all regions, and material costs even more than 100 per cent.

The CHAIRMAN. How much are the profits?

Mr. ASH. According to the statistics just issued by the Bureau of Internal Revenue, the average profits in the lumber manufacturing industry as shown by the tax returns, are less than 10 per cent.

The CHAIRMAN. What does it cost to manufacture a thousand feet of common lumber?

Mr. ASH. The costs vary in various regions and with the different mills. Such recent cost figures as I have seen for the Southern operators (this is run-of-mill stock) have varied from in the neighborhood of \$18 up to nearly \$46 a thousand, with the average cost about \$27. These figures are for September, costs are higher now.

The CHAIRMAN. Common lumber.

Mr. JONES. That is the cost of getting it out?

Mr. ASH. Yes; the cost of getting it out, putting the lumber through the mill, the complete lumber manufacturing cost, although these costs do not include interest on loans on invested capital.

The CHAIRMAN. You mean for the mill-run?

Mr. ASH. Yes; for the mill-run.

The CHAIRMAN. From \$18 to \$46 a thousand?

Mr. ASH. Yes.

Mr. JONES. And that does not include stumpage?

Mr. ASH. It does include the stumpage.

Mr. JONES. What is the price for stumpage?

Mr. ASH. The price for stumpage would average about \$5.50.

The CHAIRMAN. Why do they pay \$18 to \$46, when it can be done for \$10?

Mr. ASH. It can not be done for \$10.

The CHAIRMAN. Mr. Lee states it can be.

Mr. LEE. I gave a contract for 100,000 feet and delivered the logs, and they cut it in the mill for \$10 a thousand.

Mr. JONES. Where you have a circular mill you can go in and cut a little on the side and do that, but you can not regulate the price of lumber on the basis of the cost to the portable-mill lumberman.

Mr. LESHER. Can not the large man manufacture cheaper than the small ones?

Mr. JONES. Absolutely no.

Mr. LESHER. Then, it would seem it would be better to have portable mills.

Mr. ASH. The portable mills, Congressman, can only manufacture a very, very limited number of items.

Mr. LESHER. I know; but I question whether portable mills can cut cheaper than the large mills.

Mr. ASH. They certainly can.

Mr. JONES. It is a fact, and every lumberman in the country will tell you that. Is not that right?

Mr. ASH. There is no question about it. All the costs show it.

Mr. LESH. You are off on that.

The CHAIRMAN. Years ago I was having lumber sawed by a portable mill for \$6 a thousand. I was told that if I had a large quantity and if I would sign up a contract for a considerable amount, they would saw it for \$3.50. The people are more interested in the price of lumber than anything else. Lumber and sugar seem to be the topics of discussion nowadays.

Mr. RUBEY. I do not know whether this gentleman is an expert on shingles or not, but I would like to have somebody tell us the reason for the high cost of shingles; why they have increased in price 300 per cent or more.

Mr. ASH. I do not feel qualified to tell you about the conditions with reference to the price of shingles, but I think the same general statement of the conditions in the industry would be true in regard to shingles.

Mr. RUBEY. That does not satisfy me.

Mr. CANDLER. Is there any prospect in sight for lumber getting any cheaper?

Mr. ASH. Probably the prices may recede a little; but, with the present costs, it is absolutely impossible to sell lumber at much less than it is being sold now. In fact, lots of mills are shut down because they can not manufacture at a profit.

Mr. RUBEY. Would not this be a good time for the Government to go into the business and get rid of the lumber it has in these great forests that we have been keeping up for so many years?

Mr. MCKINLEY. We can not cut all the lumber in the country and not put in new trees and expect to get lumber cheaper.

Mr. RUBEY. We have enough now to last for a long time.

Mr. CANDLER. Is the demand for lumber throughout the country increasing because of increased building demands?

Mr. ASH. Yes; the demand has been above what it was before the war, although the latest statistics show a falling off in demand. This is due to several reasons. You will remember that during the war the War Industries Board would not allow any private building, and for the period of the war there was no private building. Throughout the country there is a great shortage of housing facilities, and that all means that at present there is a heavy demand for lumber.

The CHAIRMAN. How does the price of stumpage compare with the price heretofore?

Mr. ASH. That varies greatly throughout the country.

The CHAIRMAN. Can we not have something definite on this proposition?

Mr. ASH. It will run now probably from \$5 to \$7 for southern pine, less for some other species, and more for still other species.

The price of pine stumpage within the last few years has increased, I should say, from \$1 to \$2 a thousand.

The CHAIRMAN. From \$1 to \$2?

Mr. ASH. Yes.

The CHAIRMAN. And the cost of production how much?

Mr. ASH. The cost of production has increased considerably over 100 per cent. Labor has increased more than 100 per cent.

The CHAIRMAN. Then the price of stumpage and labor has increased about 100 per cent?

Mr. ASH. Yes.

Mr. ANDERSON. In how long?

Mr. ASH. I am figuring 1913 as a basis.

The CHAIRMAN. The cost of production is about double?

Mr. ASH. Yes; and the selling prices of lumber have not doubled, according to the Bureau of Labor Statistics.

The CHAIRMAN. I will have to take exception to that. Nearly everybody knows what lumber is selling for.

Mr. CANDLER. With reference to trees growing that the chairman spoke about a moment ago, here is a letter from the American Forestry Association which I have received this morning, in which they state that much of the timber supply in the East has gone, and so has that around the Lake States; that in the South it is going rapidly and will not last much longer than 10 or 15 years, and that it is being cut from two to three times faster than it is growing.

The CHAIRMAN. Thank you, Mr. Ash. We will hear Mr. Hogue next.

STATEMENT OF MR. C. J. HOGUE, OF NEW YORK CITY, ENGINEER IN FOREST PRODUCTS, WEST COAST LUMBERMEN'S ASSOCIATION, SEATTLE, WASH.

Mr. HOGUE. Mr. Chairman and gentlemen, I am very glad to appear for the Forest Products Laboratory. I think the manager of our association has communicated direct with the chairman by wire in support of the appropriation.

Lumber, although it is probably the oldest building material, the longest-used building material, is really in its infancy from the standpoint of industrial development and I am very glad to speak, just briefly, on the operation and work of the Forest Products Laboratory from a technical standpoint, from the standpoint of its value in the use of lumber as a structural material, as a material of engineering, because lumber is an engineering material. It has been very backward from the standpoint of technical development. Steel and cement, competitive materials, are process materials that are assembled from various raw materials, in which the percentage of the different ingredients is proportioned to answer all kinds of construction. Lumber, as a natural resource, has to be taken from the forest as found, cut as best it can be cut, and then sorted and graded as best adapted to its use. Architects and engineers who have been writing detailed specifications for steel and cement have largely taken lumber for granted. I appreciate the compliment that they have taken lumber on faith, but it is not the economic and efficient way to use lumber.

Lumber stands, I think, second or third among the industries of the country, but is made up of small units. The production last year was something like 30,000,000,000 feet, and I imagine the largest single production was possibly 300,000,000 feet. A million feet a day is, so far as we know, the largest daily output of any plant, and from that it goes down to very small amounts. So that while lumber in itself is a big industry, its production is divided among a tremendously large number of very small units. For that reason, lumber has not been able to develop itself technically as the big

steel and cement industries do in which the production is in very large units, and that is one reason why the Forest Products Laboratory is particularly advantageous to us. The lumber industry might, in groups, support the work of the Forest Products Laboratory itself, and it does to a certain extent in special detailed investigations. But on the other hand it is very important there shall be some independent authority that will develop these facts. Just the other day I was speaking to the building commissioner of Philadelphia about a new grade that was being put on the market. He was entirely receptive to it and the values were satisfactory, but he said "Send me those facts and give me the data developed by some authority outside of your own association so I will know it is disinterested and dependable." And it is necessary to have some authority to develop the facts we need to know.

Just to speak of it from one other point of view, lumber is a very large supporter of commerce through the enormous freight it gives to the railroads, and it is a very large taxpayer. We get plenty of attention from some departments, and more particularly restrictive and investigative, from the Department of Justice, the Department of Labor, the Treasury Department, the Interstate Commerce Commission, the Internal-Revenue Department, and the Federal Trade Commission. But the Agricultural Department is the only department that is doing constructive work for us, and for that reason we believe it should be liberally supported. They are conducting research in a great many lines of very great economic importance. They have made wonderful studies in the construction of aeroplanes and propellers. The stresses to which an aeroplane wing is subject are most complex, and they have developed there a system of levers by which they apply the loads, both loads to the supports and to the wing, such as it gets in the use of the aeroplane. A propeller for an aeroplane is almost as delicate an apparatus as the balance wheel of the watch. It must be refined to the last degree.

And they have made wonderful studies in the development of waterproof glues, glues waterproof in themselves and which are stronger than the wood which they join together. That results in development of ply wood and the use of small pieces of lumber. We are always accused of the waste in lumber, and that is one of the means of eliminating it—the development of the use of smaller pieces of lumber by developing some means of putting them together.

Just a few of the items developed along that line are the development of the application to bowling pins of putting laminated wood together, and the last I heard of laminated wood bowling pins, which were tried out up in Madison, they lasted longer than solid bowling pins. And so now we are applying laminated wood to spindles for cotton spinning, which demands a tremendous amount of wood. Some of the things which in the aggregate take a great deal of lumber are shoe lasts, which take enormous quantities of hardwood, maple and things of that sort, and by putting together small pieces of wood they can accomplish the same purpose.

They are making great studies in kiln drying, and just now of special importance is the work the laboratory is doing on the west coast to help study the application of kiln drying to common boards and plank.

Next is the more efficient use of wood by the paper manufacturers; and they are doing everything they can to develop an economical method of manufacturing paper of pulp wood and paper.

They have made very remarkable studies in the manufacture of boxes. They have a very interesting means of testing boxes. They have found by a very slight increase in the cost of manufacture, simply by proportioning the size and length of the nails to the hardness or softness of the wood, that there can result great economies in the use of boxes and losses that result from using improper containers.

Those are only a few of the things they are working on, and almost any one, or any few of those put together, will far more than pay for the whole cost of the laboratory in the economic saving of wood which they will make.

Much of their work, which was started as a war-time research work, has necessarily been discontinued because of the discontinuance of war-time appropriations—appropriations which were available from other departments. So now they have to rely only on their regular appropriation and a great deal of this very important work will have to be discontinued unless there can be means provided for continuing it. They are making more studies into the manufacture of by-products from waste, rather than from wood, than any one else. Probably, outside of the laboratory, there is very little study being made in the development of by-products. I was in Madison recently, and they showed me a breakfast food for cows which was made from wood waste. They had taken out the dungs, resins, and acid, and they left what made a mighty good roughage. [Laughter.] You know wood is nothing, after all, but carbohydrate, which has the same usefulness as sugar and starch, and by taking out the deleterious ingredients and leaving practically sugar, and by adding something to give it a little taste they give the cows the sugar which they need and get a very good roughage out of the by-products.

There is a growing spirit of efficiency in the use of lumber and the Forest Products Laboratory is a big factor in its development, and it will also be a big factor in the development of economies. I do not know whether I want to promise that their efforts will result in a reduction of the price of lumber, but it will go a long ways toward keeping it from going any higher than necessary.

A gentleman has spoken about the cost of lumber being \$10 a thousand for manufacture—

Mr. LEE. I meant at one place.

Mr. HOGUE. I was going to say you are very close to it. The cost of manufacture in our district, according to our latest information, is \$12 a thousand on the average. You said you had furnished the lumber, so you will see that does not include the cost of getting out the timber.

Mr. JONES. You mean just putting it through the mill?

Mr. HOGUE. Just putting it through the mill; that is the point.

Mr. JONES. I agree with him on that. You are speaking of the west coast?

Mr. HOGUE. Yes; of the west coast.

Mr. JONES. I want to ask you whether \$10 is not pretty nearly the price for jobbing in the woods?

Mr. HOGUE. About \$12 is the average price. It varies materially—from \$8 to \$16.

Mr. JONES. What does it cost to job out there per thousand?

Mr. LEE. What do you mean by "job"?

Mr. JONES. Cutting the trees, felling the trees, hauling the trees, and delivering them to the tram.

Mr. HOGUE. An equal amount.

Mr. JONES. About how much?

Mr. HOGUE. About \$12 a thousand.

Mr. JONES. That is for the jobbing?

Mr. HOGUE. That is the point I want to make.

Mr. JONES. About what does it cost per thousand to get it to the mill on the tram roads?

Mr. HOGUE. That varies. Some mills are so located they have no transportation costs, while at others it runs from \$5 to \$6 a thousand.

Mr. JONES. What does it cost to get it through the mill?

Mr. HOGUE. \$12 a thousand.

Mr. JONES. That brings it up to \$25 or \$26 a thousand?

Mr. HOGUE. \$25 to \$26 is the average cost.

The CHAIRMAN. Which includes stumpage?

Mr. HOGUE. Which includes stumpage, because their stumpage costs are low. Our stumpage cost is around \$2 a thousand.

Mr. JONES. And the eastern cost is from \$5 to \$10?

Mr. HOGUE. In the southern section it is from \$5 to \$10.

Mr. JONES. In the eastern section?

Mr. HOGUE. In the eastern section, from \$5 to \$10. The point I want to make is that Mr. Lee spoke of \$10 as the cost of sawing and he furnished the material, which is correct for his locality and very nearly correct for ours. I want to make the point the cost of stumpage and furnishing the lumber adds an equal amount to putting it through the mill. So if you say \$10 for that, then it would be \$20 in that particular locality as the average cost of stumpage and getting out the lumber.

The CHAIRMAN. What is the cost f. o. b.?

Mr. HOGUE. If the chairman bought No. 1 vertical flooring for his fencing—

The CHAIRMAN. They were just common boards used for the floor of the corncrib.

Mr. HOGUE. Common boards on the west coast are selling for between \$25 and \$30 a thousand and to the Middle West there is a freight charge of probably \$15 a thousand. So this material delivered to the dealer in the Middle West should not exceed in cost \$40 to \$45 a thousand.

The CHAIRMAN. For what lumber?

Mr. HOGUE. Douglas fir, western hemlock, and spruce. Then the retailer adds his costs for handling, overhead, and so forth, probably 15 to 20 per cent, so that the cost of common boards should not run over \$50. The most expensive lumber with our line is No. 1 vertical grain flooring which has not been sold, except in possibly a very few isolated instances, at more than \$70 a thousand at the mill. But that is so light you would not have a freight cost of more than \$10 a thousand. So that taking \$70 at the mill and \$10 for freight, it could be delivered to the retailer for around \$80 and should retail for not more than \$100 a thousand anywhere in the West.

The CHAIRMAN. You can not put bird's-eye maple on a floor in the West for that. Maple up in our country is selling for \$130 a thousand. Some years ago I bought it for \$32.

Mr. HOGUE. Maple is getting pretty scarce. But it hits me pretty close up home, when you talk about the increase in the cost of lumber, because we pride ourselves on the fact lumber has increased in price less than any other material, only about two-thirds, while everything else has increased in cost 100 per cent. And there is this point that must be remembered: Between 1910 and 1914 lumber was selling at more than as much below cost then as it is now selling above cost. So that we had to go not from a fair profit but from a decided loss up to the price we are getting now. And where last year the last fixed price by the Government for lumber was \$26 a thousand, our average return for our lumber up to August this year for the whole year was only \$26.50 a thousand at the mill, or only 50 cents a thousand more than the last Government fixed price, and with an increased cost of \$7 a thousand.

The CHAIRMAN. That is f. o. b. mill?

Mr. HOGUE. F. o. b. mill.

The CHAIRMAN. What was it six years ago?

Mr. HOGUE. It has been as low, a number of years ago, as \$6 a thousand at the mill, but the manufacturer was losing money—two or three or four dollars a thousand, at that price.

The CHAIRMAN. How much has the price of stumpage increased?

Mr. HOGUE. Very slightly with us, because there has been no market for stumpage within the last four or five years. In fact, I think stumpage, during the speculative period of 8 or 10 years ago, was higher than it is now.

The CHAIRMAN. Then it is fair to say that in the last five years the price of lumber has just about doubled?

Mr. HOGUE. I think it is fair to say that.

The CHAIRMAN. That is perfectly satisfactory. I wanted to find out what the facts were.

Mr. HOGUE. Before the war labor was \$2 a day, and now we are paying \$4.80, and labor is from 50 to 55 per cent of the whole cost. And the materials have increased 100 per cent.

The CHAIRMAN. How much has transportation increased?

Mr. HOGUE. Transportation is the same, I should say, or not so much.

The CHAIRMAN. What is the rate to Minneapolis?

Mr. HOGUE. I do not know the rate to Minneapolis, but the rate to Chicago is 55 cents, and to Minneapolis it is 45 cents, I presume.

The CHAIRMAN. Take it by comparison?

Mr. HOGUE. The average shipping weight varies from 2,000 pounds a thousand to 3,000, depending on whether it is kiln-dried flooring or heavy timbers. And on the basis of 3,000 pounds, with a 50-cent rate, that would be \$15 a thousand. On a basis of 2,000 pounds, with a 50-cent rate, it would be \$10. So in the Middle West it would be from \$10 to \$15 you would have to pay for freight.

The CHAIRMAN. Then the lumber costs, laid down, just about \$40.

Mr. HOGUE. Our mill-run at the mill is \$30 a thousand, practically. Adding \$12 to \$15 a thousand for freight, that would make between \$40 and \$50.

The CHAIRMAN. How would that apply to white pine?

Mr. HOGUE. I am not familiar with Minnesota pine. But the point is that the I. W. W. arguer uses No. 1 vertical grain flooring and tells the workingman that the manufacturer is making his stuff for \$12 a thousand and selling it for \$120, but he does not say that No. 1 vertical grain represents one-fourth of 1 per cent of the whole output, and that where it may be selling at retail for \$120 a thousand in the East, the average return is only \$30 a thousand. And our mills, for the average, from the 1st of January to the present time, show only an amount above the cost of production of something like \$1.50—between \$1 and \$1.50, which amounts to about 3 per cent on the invested capital, and the return was \$4 this year.

Mr. JONES. Is your lumber graded?

Mr. HOGUE. Yes, sir.

Mr. JONES. When a log is put on the carriage there is a certain portion of that log that is sold at less than the cost to manufacture?

Mr. HOGUE. Decidedly so.

Mr. JONES. What per cent of that log is sold at less than the cost of manufacture—of your character of lumber?

Mr. HOGUE. I should say more than half of it.

Mr. JONES. About 60 per cent of it?

Mr. HOGUE. About 60 per cent of it, because only about 20 per cent is clear and 80 per cent goes into the lower grades.

Mr. JONES. About 60 per cent of every log put through the mill you have to sell at less than cost?

Mr. HOGUE. At less than cost.

Mr. JONES. And that has been true ever since the lumber business was created?

Mr. HOGUE. Absolutely; because the spread in price is far greater than the spread in cost—I mean the variation from high to low.

Mr. JONES. That is also true of the hardwoods of the East?

Mr. HOGUE. It is true of all woods that I know of.

Mr. JONES. Probably not hemlock, because—

Mr. HOGUE. Possibly not, because that is of a more uniform grade.

Mr. CANDLER. The other part of the log is used for some purpose; even the sawdust?

Mr. HOGUE. That is true.

Mr. CANDLER. So that there is nothing lost to-day?

Mr. JONES. But it is sold at less than the cost to put it through the mill.

Mr. HOGUE. A large percentage is sold as logs and slabs.

Mr. CANDLER. But what you get out of that contributes to reduce the increased price of the other, because there was a time when that part of the log was absolutely lost, whereas it is all utilized at the present time.

Mr. JONES. I do not think it was ever a total loss to the sawmills, because they used it as fuel instead of coal.

Mr. CANDLER. I have seen lots of it that was just burned up.

Mr. JONES. Yes.

Mr. HOGUE. The big loss and waste is in the woods. The reason it is called waste (as a matter of fact the waste is small) is because it will not pay to manufacture it into a by-product. But now, as the materials get scarcer, and as we get into the condition

of Europe, we will develop our by-products and use the waste, but it is not economically possible to do it now.

Mr. McLAUGHLIN of Michigan. You spoke of other departments of the Government that were contributing to the cost of the laboratory in Madison. What other departments and how much money is being contributed?

Mr. HOGUE. I do not know. I know during the war there were appropriations available from the War Department, the Navy Department, and possibly some other department for special investigations. For instance, a good deal of this research in aeroplane propellers and aeroplane construction was paid for out of appropriations from those departments, and those appropriations are no longer available.

Mr. CANDLER. What is the appropriation now available for the laboratory?

Mr. HOGUE. \$175,000, I think.

The CHAIRMAN. \$173,260.

Mr. CANDLER. How much increase is being asked for over and above the present appropriation?

Mr. HOGUE. I think the regular appropriation, plus these extraordinary appropriations, was considerably smaller than the appropriation that is asked for next year.

Mr. CANDLER. You want an increase now from \$175,000 to \$500,000?

Mr. HOGUE. \$350,000 I think is the amount asked for.

Mr. LEE. Increase or—

Mr. HOGUE. \$350,000 is the total amount asked for now.

Mr. RUBEN. \$348,260 is the amount of the estimate.

Mr. CANDLER. Do you know anything about the conditions existing in the South at the present time in the lumber business?

Mr. HOGUE. Not particularly, except the information that is brought to me. I know they have suffered this year tremendously, all through the year, from labor troubles and weather conditions, and the production has been very much curtailed and the cost has been very high. Their costs are higher than our costs.

Mr. CANDLER. The demand for lumber is growing all the time, due to the increase in building operations?

Mr. HOGUE. There is a tremendous demand which this year has not been satisfied.

Mr. CANDLER. The lumber mills have not been able to meet the demand?

Mr. HOGUE. No; our mills have been running for the last month at capacity, and yet they have not begun to supply the demand.

Mr. CANDLER. What is the extent of your lumber operations?

Mr. HOGUE. About 20 per cent of the annual production of the United States at the present time.

Mr. CANDLER. How much do you produce a season?

Mr. HOGUE. Our production last year was $7\frac{1}{2}$ billion. That is 25 per cent; $7\frac{1}{2}$ billion out of 30 billion.

Mr. CANDLER. Where are you located?

Mr. HOGUE. On the west coast of Oregon; just this strip along the Cascade Range between Oregon and Washington [indicating on map]. We have about 25 per cent of the standing timber of the United

States and we are getting to be the chief source of supply as other sections of the country are cut out. Until they can be reforested and again brought into production, we will have of necessity to be the reliance of the United States.

Mr. CANDLER. In a letter which I received this morning it is stated that the lumber is being cut two or three times faster than the trees are growing. You seem to have a very large interest, and I would like to know whether that is true or not?

Mr. HOGUE. It is.

The CHAIRMAN. Thank you, Mr. Hogue. We will now hear Mr. Nellis.

STATEMENT OF MR. J. C. NELLIS, ASSISTANT SECRETARY, NATIONAL ASSOCIATION OF BOX MANUFACTURERS.

Mr. JONES. Where are your headquarters, in Baltimore?

Mr. NELLIS. The headquarters of the association are at Chicago. I am stationed at Baltimore. The National Association of Box Manufacturers has affiliated with it all but one of the several regional associations of box manufacturers, so that I can assume to speak for practically the entire wood-box industry.

The National Association of Box Manufacturers, the national organization of wooden box manufacturers, supports without qualification the proposal of the National Lumber Manufacturers Association and other forest products associations, that the Forest Products Laboratory needs at least \$500,000 a year to operate to the full measure of the needs of the forest products industries for scientific industrial research.

The National Association of Box Manufacturers has cooperated with the laboratory for several years in box testing and will continue to cooperate.

The laboratory has established the value for boxes of about 50 kinds of wood, including many minor species previously unknown to box users but now available to box manufacturers who in some sections, for example, Wisconsin and Michigan, buy such woods from farmers who are clearing land.

I might say parenthetically that the same kind of stuff goes to the pulp manufacturers, too.

The laboratory has, with limited data, set up strength standards for four groups of the 50 box woods. Further grouping is needed.

Laboratory tests have shown slender cement coated nails to have greater holding power than thick smooth or barbed nails.

The standard canned goods box specifications formulated after extensive tests by the Forest Products Laboratory have been adopted by the following:

National Association of Box Manufacturers, National Cannery Association, National Wholesale Grocers' Association, United States Food Administration, Quartermaster Corps, War Department, Navy Department, American Society for Testing Material.

Mr. Chairman, I have copies of those specifications here in case anybody cares to see them.

The reports of the Forest Products Laboratory were the basis for, and the contents largely of, the general boxing specifications of the

War Department, and the separate specifications of the Ordnance Corps, both issued in 1918.

I have copies of those also if anybody cares to see them. This was last year.

The laboratory makes box tests for the Bureau for the Safe Transportation of Explosives and Dangerous Articles which is maintained by the railroads.

In cooperating with the Railroad Administration's Committee on Packing, Containers, and Prevention of Loss and Damage the laboratory reports enabled us to convince that committee that, in general, boxes could be strengthened by using more nails and strapping, rather than by using more lumber. This, also, is a conservation of wood.

Laboratory tests have shown that with proper nailing and strapping, boxes made from the lowest grades of lumber may be made serviceable.

The National Association of Box Manufacturers has recently adopted and is now giving considerable publicity to a revised schedule for nailing boxes prepared by the Forest Products Laboratory. I have copies of that also if anybody cares to see it.

I am attaching to this memorandum a copy of the monthly bulletin issued by our association, called The Wood Box. It is the December issue. There are on five pages of it articles either quoted from the laboratory or about the laboratory. There is one communication from a company which had its crate tested, and it cheapened the cost of the crate and gained about 600 per cent in strength. The fact that these articles are quoted in the box association bulletin shows how much we depend on the laboratory.

The Forest Products Laboratory has the only special box testing apparatus operated exclusively for the public interest. Similar special machines are operated by several corporations but the public's box-testing laboratory is the most inadequately financed of all.

The wooden-box industry uses about 15 per cent of the lumber produced in the United States. It is low-grade lumber, No. 2 to No. 4, common in the various woods. These low grades would to a large extent be unusable otherwise. The proportion of low grades in our lumber cut is increasing each year as virgin timber becomes less and second growth is cut more and more. The utilization of the increasing proportion of low-grade lumber calls for increased scientific investigation to indicate new methods, the construction of boxes with even lower-grade lumber than now, stronger boxes with the use of no more lumber, with the use of stronger woods, etc.

Referring to stronger woods, I would like to call your attention particularly to the fact that there are several woods existing in large quantities that are used very little in boxes. Long-leaf pine constitutes about $1\frac{1}{2}$ per cent of the stuff used for boxes, but there is a great deal available. Oaks constitute about 1 per cent of the material used for boxes, but there is a great deal available. Douglas fir constitutes about one-sixth of 1 per cent of the lumber used for boxes, but enormous quantities are available.

The wooden-box industry, using 15 per cent of our lumber cut, earnestly supports the Forest Products Laboratory and urges that both the box testing and all lines of work be fully financed, and

urges an appropriation of not less than \$500,000, the amount recommended by the several forest-products associations.

Mr. ANDERSON. Where do you get that figure?

Mr. NELLIS. In order to save time I was just omitting a little explanation. It urges an appropriation of not less than \$500,000.

Mr. ANDERSON. Where do you get that figure?

Mr. NELLIS. The several national forest-products associations, the National Lumber Association, the Wood Preservers' Association, the National Pulp and Paper Association, the American Institute of Architects, and the Chicago Association of Commerce, and perhaps one or two others that I do not think of now formed some time ago—three months ago, or last summer—a committee known as the Forest Products Committee, which had its headquarters at Chicago, because most of the men on the committee lived there or near there. For some time they had been studying the needs of the Forest Products Laboratory, and it has been their conclusion that to properly support the work and extend it as needed the appropriation should not be less than \$500,000.

Mr. JONES. Do you mean this lumber is going to waste now; that it is not being utilized at all?

Mr. NELLIS. No, sir.

Mr. JONES. If the lumber is being utilized, if all grades of lumber that the mills are cutting are being used in the market, what is the need of this investigation?

Mr. NELLIS. My answer to you I do not believe was entirely accurate. Not being a lumberman, I can not tell you what per cent of the low-grade production does not leave the mill.

Mr. JONES. I can understand why the Government should be interested in making an investigation as to the use of wasted lumber, in the lumber interest or in any other interest, as a matter of conservation. But if everything that comes out of the log is being utilized, I don't see the necessity for this investigation and this expenditure of money.

Mr. NELLIS. I think if you were to ask an oak lumber manufacturer if he ships all of his lumber from his mill, he would tell you that he had to leave his No. 4 common at the mill.

Mr. JONES. What?

Mr. NELLIS. All his oak. That is what I heard some time ago.

There is an element that I did not mention, perhaps because I did not want to confess it; there is competition in the box business between the manufacturers of different kinds of containers, and in the fact that the use of the fiber board container has developed tremendously. As lumber increases in price at times that container bobs up a little more. As paper and pulp goes up, the lumber comes to the fore.

Mr. JONES. As softwood goes up they use hardwood culls, do they not?

Mr. NELLIS. That is true.

Mr. JONES. They fluctuate to meet a market condition, but in any event all the lumber is utilized?

Mr. NELLIS. I think, generally speaking, most of the lumber is utilized, yes.

Mr. JACOWAY. What do you call No. 4 common?

Mr. NELLIS. It is the lowest grade of the wood, I believe.

Mr. JACOWAY. I did not know that there was a No. 4 common.

Mr. NELLIS. As I recall, it is the lowest grade ever put out by a hardwood association, and perhaps they have abandoned it. That is something upon which I am not well informed.

The CHAIRMAN. The culls are being used for the manufacture of boxes?

Mr. NELLIS. I understand a great many mills in the South, perhaps some of the Western States, are still running their large burners to get rid of a certain proportion of the slabs and waste which they can not use under their own boilers.

The CHAIRMAN. The stumps are used for shingles where they are cut high?

Mr. NELLIS. It depends on the species, I would say.

The CHAIRMAN. What is to be added to this laboratory in Madison?

Mr. NELLIS. As interested particularly in the box industry, I can not speak authoritatively about the other interests. But I understand this—

The CHAIRMAN. What progress is being made in the box industry and what is desired further than what is being done?

Mr. NELLIS. This laboratory has set up four groups of about 50 box woods with a little difference in the construction of the boxes from the different woods. We ought to have more grouping than that.

The CHAIRMAN. I think we all appreciate the importance of the work that is being done, but the question is how much ought it to be increased, if at all.

Mr. NELLIS. I have one more paragraph in the statement. The box-testing apparatus at the laboratory is now housed in a remodeled old barn, detached from the laboratory and not well located. The importance of the work deserves much better housing. Further, I understand the former efficient box-testing organization is now practically disbanded, since money available has been insufficient to allow trained engineers to be kept on box testing, and, in addition, I understand several trained box-testing engineers have within the last year resigned to accept better situations elsewhere. I understand the present appropriation allows box testing to be done only at occasional periods and that a well-planned program can not be followed. The box industry needs badly a schedule to follow in constructing, nailing, and strapping boxes to hold different weights of different commodities, especially for export. Those things are worked out largely by a man's experience, and a man's experience is not always the best thing to base things on. The laboratory is the only source of such information for the whole box industry.

In order to adequately operate the box-testing apparatus, the Forest Products Laboratory, I understand, must have its appropriation increased to \$500,000, so that the proportion allotted to box testing will be sufficient to operate the box-testing section continuously and at a rate commensurate with the needs of box manufacturers and shippers who use boxes.

I would like to add, Mr. Chairman, that within the last few months it has developed that we did not have tests on certain large lots of

boxes used in large quantities. The Railroad Administration was asking about it. They asked particularly about dry goods boxes, boot and shoe boxes, boxes for hats and caps, and they found that while there was general information available, nobody had made any tests on those particular boxes. So there is something that is needed, and I understand the laboratory did not have sufficient funds to complete such tests for the Railroad Administration, and they did not feel that they ought to undertake it, and, as far as I know, these particular tests are still on the program, pigeonholed.

Mr. McLAUGHLIN of Michigan. Does your association or any of the members contribute anything for the making of tests for these individuals?

Mr. NELLIS. I would like to answer your question backward. When box tests are made the results are used by box manufacturers, and, to a large extent, they benefit the shipper or the man who uses the boxes. He saves in freight on a lighter box, or he gets a stronger box, and he makes or holds a customer down in South America. Answering the first part of your question, the National Association of Box Manufacturers is contributing now to the box-testing laboratory at Madison.

Mr. McLAUGHLIN of Michigan. How much?

Mr. NELLIS. I can not tell how much. It is handled by the Chicago office.

Mr. McLAUGHLIN of Michigan. How long has that contribution been made?

Mr. NELLIS. For a period, I should say, of between three and six months; since July 1 at least.

Mr. HUTCHINSON. What do you mean by testing a box, testing a sample?

Mr. NELLIS. It is a sample box, but nevertheless it is constructed in the way a regular box would be constructed, and if it can not be loaded with what the regular box would carry it is loaded with a similar weight. If it is a canned goods box it gets a load of tin cans holding water. As far as possible they put in the identical article.

Mr. HUTCHINSON. Why is it necessary to use thousands of a particular crate? Why would not one or two do?

Mr. NELLIS. The \$500,000 has to be spread over the entire work, and the laboratory tests of boxes are conducted in a little barn. I do not know whether it gets 5 per cent or 10 per cent of the amount.

Mr. HUTCHINSON. What do they do in testing a box?

Mr. NELLIS. The testing machine for testing boxes is a large iron drum, of hexagonal shape, about 14 feet in diameter and about 7 or 8 feet wide, of hexagonal shape with six faces. On each face there is a slot, or a projection or a bump. The box is put in there, constructed and nailed as it would be in practice, or changed somewhat to find out how it should be improved. The drum is rotated. The whose machine is designed especially, the bumps and battles and projections, so that the box gets most of the things that happen to it in transportation. If it falls on a projection, as it might on the corner of another box in a freight car, or having a wagon tongue slammed into it, if the test is run long enough, it is so designed that it will fall on every side or corner or edge so that it gets any kind of a fall which it might get in actual handling.

Mr. HUTCHINSON. Supposing your box manufacturer does not make that crate? How does that help the trade any?

Mr. NELLIS. It seems to me that is another question.

Mr. HUTCHINSON. I do not think it is.

Mr. McKINLEY. They are telling him how to change his box.

Mr. NELLIS. You are getting into another subject. Very often a box or crate can be improved and the box manufacturer can plead with the customer, asking him to do it, and he says, "I prefer to save a cent," and cents make a lot of difference in construction of boxes.

Mr. HUTCHINSON. Have you the price of boxes there?

Mr. NELLIS. No.

Mr. HUTCHINSON. You know they have gone up three or four times.

Mr. NELLIS. I think not quite that much.

Mr. McLAUGHLIN of Michigan. Where is this barn where the experiments have been carried on?

Mr. NELLIS. The laboratory is on one of the principal streets. The barn is near the railroad track.

Mr. McLAUGHLIN of Michigan. It is in Madison?

Mr. NELLIS. It is on the track west on a muddy road.

Mr. McLAUGHLIN of Michigan. Do you know that at the time the laboratory was established at Madison the authorities there agreed to erect such buildings as were necessary at their own expense?

Mr. NELLIS. I understand that, yes; and I will admit that the box-testing machinery was not moved to this old barn until the war came on.

Mr. LEE. What is this barn constructed of? You say it is a barn.

Mr. NELLIS. It is a good old lumber barn, remodeled as I stated.

Mr. CANDLER. A wooden barn?

Mr. NELLIS. Yes, sir.

The CHAIRMAN. Are you through with your statement, Mr. Nellis?

Mr. NELLIS. Yes.

The CHAIRMAN. Thank you, Mr. Nellis. Your hour has been consumed. Mr. Ash, how much more time do you want?

Mr. ASH. Two more short statements.

Mr. CANDLER. How long will they take?

Mr. ASH. About 5 minutes for the others.

The CHAIRMAN. Very well. We will hear Mr. Kemper next.

STATEMENT OF MR. EDWARD C. KEMPER, EXECUTIVE SECRETARY, AMERICAN INSTITUTE OF ARCHITECTS.

Mr. KEMPER. Mr. Chairman, I am here as the Executive Secretary of the American Institute of Architects. Our technical representatives in this matter, Mr. Elmer C. Jensen, a member of the Forest Products Committee to which Mr. Nellis referred, was unable to get here from Chicago, and I desired to submit a brief statement on his behalf and on behalf of the American Institute of Architects.

The American Institute of Architects, the national organization of the architectural profession, desires to go on record as heartily indorsing the research and laboratory work which has been conducted

during the past year by the Forest Products Laboratory in the Department of Agriculture.

The architects, the engineers, and the other building interests of the country do not have authoritative information on wood and wood products, as used in the building industry, to the extent to which they should have it.

The Forest Products Laboratory is doing valuable work in supplying this information, and in view of the building situation in the United States its scope and service should be expanded.

The representative of the American Institute of Architects in this matter, Mr. Elmer C. Jensen, a successful architect in Chicago, Ill., has made a study of the problem from the architect's point of view, and we urge, on his recommendation, that the appropriation of \$348,000 asked for by the Secretary of Agriculture for the Forest Products Laboratories be made \$500,000.

Mr. ANDERSON. The gentleman referred a moment ago to some difficulties with the other departments. I want to ask him a question.

Mr. ASH. This is not coming out of our time, I understand, Mr. Anderson?

Mr. ANDERSON. No, sir. But you are getting more time than you asked for now. I see reference has been made to the difficulties of the lumber companies. Do all of these associations think Congress ought to reduce the expenditures for the operation of the Federal Government?

Mr. KEMPER. You are asking a question which should be addressed to another witness before this committee. I did not refer to the other departments.

Mr. ANDERSON. But do you think so? You are asking us to increase this appropriation. We are being asked on every side to increase appropriations. We can not increase appropriations and reduce expenditures. What we would like to know is whether all these associations which appear here this morning want us to increase the appropriations or reduce them.

Mr. KEMPER. The American Institute of Architects wants you to increase the appropriation for this particular work. We feel that the building industries of the country generally would benefit if they had more complete and reliable information on the tensile strength of the various kinds of lumber, and on the unusual properties of certain kinds of woods which make them peculiarly suitable for certain conditions or building problems.

Mr. ANDERSON. Most people are in favor of things that they can have done them for nothing. It ought not to be a matter of surprise that these associations are in favor of the increase of this appropriation. The question that we are really up against is increasing this appropriation and hundreds of other appropriations and still keeping within the revenues. We have requests to increase the appropriations and still we have no increase in revenues.

Mr. KEMPER. Does not this resolve itself into a question of relative values? From our point of view, we feel that this \$500,000 would benefit the whole people. The building situation in this country is bad. As everyone knows, the cost of all construction work is high, and anything that would help to lower that cost or help keep it

down to the present level would be of vital interest to the building public.

Mr. ANDERSON. You never have had so much help as last year, and yet you still ask for an increase.

Mr. KEMPER. A great deal of such help received last year by the laboratory and other Federal bureaus went for war activities. It did not help the average taxpayer if he wanted to build. For two years it was considered unpatriotic to build a house or any other structure not essential to the war. Now, all that accumulation has to be taken care of. It has been dammed up and sooner or later it must break loose.

Mr. CANDLER. May I ask a question along the line of Mr. Anderson's question? Does your association favor a uniform plan for public buildings and for reducing our expenditures in the amount of money we expend for architectural work in the construction of post offices throughout the country? [Laughter.]

Mr. KEMPER. That question is hardly germane to this particular subject, but I will gladly answer it if the Congressman desires it.

Mr. CANDLER. It is germane to the question Mr. Anderson asked about expenditures.

Mr. KEMPER. I will say that the American Institute of Architects is absolutely opposed to the present system of constructing public buildings in the United States. We believe it is a pork-barrel system and that it should be changed. [Laughter.]

Mr. CANDLER. Do you believe that a uniform post office, costing a certain amount of money, should be built throughout the United States?

Mr. KEMPER. We believe that certain uniform standards in the construction of post offices should be followed, but we do not believe that the Federal Government should have two or three or four types of plans for the whole of the United States, and that a particular plan should be used for any post office costing, say, \$100,000, regardless of whether it is to be located in southern California or Portland, Me.

Mr. CANDLER. Then you do not approve of two or three plans, according to which all post offices must be built?

Mr. KEMPER. No; but we do approve of certain uniform standards which have been discussed before other committees of the House.

Mr. CANDLER. I am glad to hear that.

The CHAIRMAN. Thank you, Mr. Kemper. We will now hear Mr. Schnatterbeck.

STATEMENT OF MR. CHAS. C. SCHNATTERBECK.

The CHAIRMAN. Whom do you represent?

Mr. SCHNATTERBECK. The American Wood Preservers' Association.

The CHAIRMAN. You may proceed.

Mr. SCHNATTERBECK. The American Wood Preservers' Association membership consists of city engineers, railroad men, private engineers, chemists, foresters, and lumbermen. The association numbers about 300 and some odd. At its last annual convention

the association passed a resolution favoring the maintenance of the Forest Products Laboratory. I will read the resolution [reading]:

Whereas the Forest Products Laboratory has in the past contributed data of inestimable value to our industry, but has during the war confined its efforts to the problems of airplane construction: Be it

Resolved, That this association urges that they resume their researches in the wood-preserving industry.

Wood preservation means wood conservation. The investigations of the Forest Products Laboratory have been of great value to the men who are trying to conserve our forest resources. Their investigations of the toxic value of preservatives that are used in treating wood to protect it against rot have helped to prolong the life of that wood anywhere from 50 to 100 per cent. The railroads to an extent are largely benefited by this movement. They are among the largest consumers of wood in the country for crossties, of which they consume about 125,000,000 a year, one-third of which are treated, bringing about a material saving to the railroads.

In other lines, in the cities, for instance, where we have block paving, the life of the pavement, the durability of the pavement, and the service rendered by that pavement is prolonged through the treatment of these blocks with creosote and other preservatives.

Investigations have also been conducted in regard to treating piling in order to prevent docks and piers from rotting and to protect them against marine borers. There are committees that are investigating the problem of piling, treating piling so as to make it last anywhere from 20 to 40 years that otherwise would last only 3 to 5 years.

The American Wood Preservers' Association is very anxious to do what it can to cooperate with the Forest Products Laboratory to propagate the principles of wood preservation, which is not alone for selfish purposes, but to be of universal use, and we all sincerely hope—the executive committee of the association as well as the members who passed this resolution—that the gentlemen will approve the appropriation.

If there is any question that I can answer, I shall be glad to do so.

Mr. CANDLER. Do any of these associations contribute any funds to this work in cooperation with this laboratory?

Mr. SCHNATTERBECK. No, sir. The American Wood Preservers' Association is hardly self-supporting. It is not an organization to make money. Tree conservation and the saving of our national resources is one of the objects of the association, and therefore we are very anxious to have the Forest Products Laboratory help us in this.

Mr. JONES. Who composes that association?

Mr. SCHNATTERBECK. The members are city engineers, railroad men, railroad engineers, chemists, and men who are, directly or indirectly, interested in conservation movements.

Mr. LEE. What does it cost to treat a crosstie?

Mr. SCHNATTERBECK. About 30 cents. It depends upon the process.

Mr. JACOWAY. In the treatment of piling, have you found anything better than creosote?

Mr. SCHNATTERBECK. No, sir.

Mr. JACOWAY. Is that as far as you have gone in the investigation of preserving wood?

Mr. SCHNATTERBECK. Yes, sir.

Mr. JACOWAY. You know of nothing else better than that?

Mr. SCHNATTERBECK. No, sir. It will waterproof it, and it will not leach out of the timber as other preservatives of wood.

The CHAIRMAN. Thank you, Mr. Schnatterbeck. We are grateful to you, Mr. Ash, and gentlemen. We will now hear Col. Graves further on this subject.

STATEMENT OF MR. HENRY S. GRAVES, FORESTER AND CHIEF FOREST SERVICE, DEPARTMENT OF AGRICULTURE—Continued.

Mr. McLAUGHLIN of Michigan. In connection with the Forest Products Laboratory, do you detail any men to work in the laboratory or collaborate in any way with it? Is any part of the expense incurred at Madison contributed by you and carried in any of these other appropriations?

Mr. GRAVES. Only such incidental expenses as might come in the general direction of the whole Forest Service.

Mr. McLAUGHLIN of Michigan. How much money?

Mr. GRAVES. It would be a very small part of my time and the expenses of myself or associates in Washington who visit the laboratory.

The CHAIRMAN. What have you to say as to these figures?

Mr. GRAVES. Would you like to dispose of this item at the present time?

The CHAIRMAN. Yes. There is an increase of \$175,000.

Mr. GRAVES. When I presented this request to the Secretary of Agriculture for an increased appropriation for the Forest Products Laboratory, he asked me whether I could justify it as an urgent need of the Nation to-day in the light of the present financial conditions of the country. The work is so directly related to the prevention of waste and to the saving resulting from economies in the use of wood that I felt it was my duty to urge the request and that the proposed expenditure is fully justified.

In answer to the question which was asked during this hearing regarding the work during the war, we received contributions from the Army and from the Navy amounting in the aggregate to \$463,092, covering the fiscal years 1918 and 1919.

The CHAIRMAN. State the amount by each, if you have it.

Mr. MCKINLEY. You had better state it by years also.

Mr. GRAVES. The War Department contributed \$271,000 and the Navy \$118,000 for the fiscal year ending June 30, 1919. For the fiscal year ending June 30, 1918, the War Department contributed \$63,545.25 and the Navy \$10,546.75. This was for special studies in aircraft, in box work, and other features connected with the use of wood by the Army and Navy.

Mr. MCKINLEY. And all those studies were made in Madison?

Mr. GRAVES. Yes; they were made by our laboratory at Madison.

Mr. ANDERSON. Have they been completed?

Mr. GRAVES. They have not yet been completed, and this fiscal year the Army has contributed \$40,000 and the Navy \$100,000 for the continuance of some of the investigations.

Mr. ANDERSON. Do you know whether or not they contemplate making any contribution for the next fiscal year?

Mr. GRAVES. That question has not been taken up.

The CHAIRMAN. You said this year.

Mr. GRAVES. The current fiscal year.

The CHAIRMAN. \$40,000?

Mr. GRAVES. \$40,000 from the Army and \$100,000 from the Navy.

Mr. ANDERSON. Is this investigation in relation to the industry generally, or are the results likely to be of value only to the War Department and to the Navy Department?

Mr. GRAVES. Practically no investigations have been made which will not have a direct bearing on peace-time conditions, although all were undertaken because of some urgent and specific military need. Of course, some of the aircraft work is not as pressing as in war time, but it is still greatly needed in the constructive work of the Army and the Navy and for the industry that is constructing aeroplanes, and the principles evolved have a wide application in other wood uses.

Mr. ANDERSON. I do not want to anticipate your statement, but, lest I forget the question, I want to ask you whether the experience which you have already had in connection with this box-testing business shows that there is any general acceptance on the part of the box manufacturers of the results of these tests?

Mr. GRAVES. The box manufacturers have adopted specifications on the basis of these tests in a number of important instances. The Army used our specifications in connection with boxes for shipping ordnance and other materials of various kinds. The assistance was asked because the Army could not get boxes in adequate quantities. The new specifications prepared by the Madison Laboratory made available a long list of substitute woods that were quite satisfactory and available. I have and can insert into the record, if you wish, some definite illustrations of the saving to the Army in materials and shipping space resulting from the work on boxes during the war. The results of the box tests have been very real.

Illustrations of saving to Army by box investigations at the Forest Products Laboratory.

Commodity.	Containers. ¹		Remarks.
	Saving in space.	Saving in lumber.	
	<i>Per cent.</i>		
Artillery wheel harness.....	26	26 per cent.....	Box equally serviceable.
Artillery lead harness.....	26	do.....	Do.
Ration container.....	10½	Slight.....	Much more serviceable container.
4.7-inch high-explosive shells.....	20	20 to 30 per cent.	More serviceable, more easily handled, cheaper, less weight.
Intrenching hand axes.....	32	Slight.....	Just as serviceable.
Shipping case for 142 pounds cannon powder.	14	Same amount used.	More serviceable.
Box for short-handle round-nosed shovels.	9	Slight.....	Do.
Intrenching pick-end mattocks.....	7	do.....	Just as serviceable.
Box for two Browning automatic machine rifles and equipment.	28	28 per cent.....	Do.
United States rifles.....	25	20 per cent or more.	Do.
Boxes for two Browning machine guns and equipment.	17	Slight.....	Do.
Box for 6-inch Stokes trench mortar shell.	15	32 per cent.....	More serviceable and more convenient.

¹ The data given regarding space and lumber saved is based on a comparison of the original container with those developed at the Forest Products Laboratory.

Mr. McLAUGHLIN of Michigan. The manufacturers made boxes according to specifications for the Army and Navy. It was necessary for them to do that. But, in line with Mr. Anderson's question, did box manufacturers approve the suggestions of the laboratory as to the boxes and follow those suggestions in the making of boxes for the trade where they were not bound down by specifications as they were by the Army and Navy?

Mr. GRAVES. Oh, yes; there has been a widespread acceptance by them. I can not say that all box manufacturers have accepted the specifications. I do not think that would be true. But various box associations, the National Grocers' Association, the National Canners' Association, and other shippers have adopted the laboratory specifications.

Mr. ANDERSON. The thing I am trying to get at is this, Col. Graves: My impression is that the utilization of material for whatever purpose—character of manufacture, everything of that sort—depends very largely on the possibility of getting the articles, the raw material, and on the economic conditions of competition, than upon experimentation as to what it is best to use under certain circumstances. If you have not the raw material you can not use it. If competition is such that they can not conform to specifications, they will not do it. Consequently there is some question in my mind as to how much value there is in research of this sort.

Mr. GRAVES. We must remember that wood is essentially a different kind of material from many other structural materials, like cement, steel, and so on, except in the case of pulp; wood is not broken down and reformed like cement or steel. There are a very large number of different species and a wide variation in the quality of the wood that comes from different species. There is a great deal of uneconomical use of wood and consequent waste due to ignorance of the qualities and value of kinds of wood and of grades not commonly in the market.

Mr. JONES. Colonel, following that same thought, and probably along Mr. Anderson's line of thought, does not the user of wood apply himself to what he can get? For instance, down in the hard-coal regions for years and years the miners would use and wanted to use soft wood in their cribbing and different places in the mine, largely because it was lighter, easier to nail, and gave them less trouble in putting it up. When soft wood became scarce in the eastern hard-coal market, hardwood manufacturers who were unable to find a market for their cull lumber went to the hard-coal operators and prevailed upon them to use hardwood. They took the hardwood because they could get it. They could not get soft woods, and, irrespective of the wish of the miners or their preference for soft wood, as it was easier to handle, easier to put up, they do use hardwood. Is it not a fact that the people who manufacture different kinds of lumber, who have different kinds of wood, see to it that they get a market for this stuff even to the extent of going out and prevailing upon users of other kinds of wood that they can use this particular kind? That is true with reference to boxes even now, though manufacturers prefer soft wood. It is better to put the hardwood to use because they can not get soft wood.

Mr. GRAVES. That is true to a certain extent.

Mr. JONES. Is it not true that these woods are being utilized because of the availability of the wood rather than through experiments that have been made for the use of these woods?

Mr. GRAVES. Only to a certain extent, I believe. I think the question of lack of information in regard to different woods among engineers, among architects, among municipal engineers who draw our building codes, and among wood users generally is responsible for a great deal of lack of economy in wood utilization.

Mr. JONES. That is true, but do you suppose that the manufacturers of one particular kind of wood are not going to use every effort to see that their finished product is being utilized? Is there any justification for the Federal Government coming in and telling them that they will go out and make experiments in a particular product in order to furnish for them a market for it?

Mr. GRAVES. The necessity for the investigations was certainly shown in the case of aircraft and in the testing of boxes, and these studies have resulted in a very great saving.

Mr. JONES. Why, in your opinion is it necessary for the Federal Government to spend money to develop the sale of the articles manufactured by private interests, especially in lumber, where they can sell anything that they make?

Mr. GRAVES. I do not think that is the purpose or the immediate effect of these investigations. It is for the purpose of extending information regarding the wood, the quality of wood, the basis for grading, etc. From a public standpoint there is a direct relation to the forest and the extension of the life of our reserve supplies of timber. It is this rather than the purpose of benefiting some special industry. I might illustrate this by what we are doing with built-up materials through splicing and lamination. People are not going to begin to use laminated articles made of small pieces of wood unless it can be shown that they are strong and have qualities to meet their requirements.

Mr. JONES. I can understand how, where the Government uses railroad ties or uses piling or any other kind of timber, you would want to experiment on materials that would preserve the life of these things, but what is true of the Federal Government doing that; equally true of the private interests doing it. There is just as much interest on the part of the railroad corporations themselves in making experiments with preservatives to prolong the life of railroad ties, and it does prolong the life from 5 to 14 years. It does prolong it, but the private interests have just as much at stake in developing these experiments as the Federal Government has. Why the Federal Government should make the experiments for the benefit of the private interests is more than I can understand.

Mr. MCKINLEY. Might I ask Mr. Jones why we have the Department of Agriculture?

Mr. JONES. If you want an answer, I will say I do not know.

Mr. LESHNER. That is what I am trying to find out.

Mr. JONES. Yes; that is what I am trying to find out.

Mr. GRAVES. We certainly should have basic information regarding the strength and other qualities of the wood of different species. We should have basic information regarding the effect of wood preservatives on the strength of wood.

Mr. JONES. True.

Mr. GRAVES. Should not that be done by a public laboratory? Can that be left entirely to private initiative, to companies each of which has some particular problem, some particular process, some particular question that it wants to work out for its own benefit rather than to get this information for the benefit of all the engineers or the wood associations all over the country?

Mr. JONES. In answer to that I would say that if some particular railroad corporation has to determine the way ties are benefited, it would not be long before the other railroads would be using it. I think the public would get the benefit of anything that private interests established, unless there is some secret process about it. I do not think you need worry about the public getting the benefit of everything that is found out. They get it in other lines.

The CHAIRMAN. Colonel, is that all you care to say about this subject?

Mr. GRAVES. Mr. Chairman, there has been a great deal already said regarding what has been done at the laboratory along different lines. I do not know whether you wish to have me describe this work, which would be more or less a repetition of what has already been said.

The CHAIRMAN. Colonel, what urgent demand is there for the increase? Is there any new line of activity to be taken up?

Mr. GRAVES. Most of the work will be along the lines which have already been started. It is to extend the work and to bring about the application in practice of the many principles which have already been established.

The CHAIRMAN. Are the Navy and War Departments going to continue their work?

Mr. GRAVES. We shall continue the work on those special war features if desired by the Navy and War Departments.

The CHAIRMAN. At the expense of the other departments?

Mr. GRAVES. At the expense of the other departments, where the work is done especially for them.

The CHAIRMAN. It will be left to the discretion of the department whether it is to be continued?

Mr. GRAVES. Yes.

The CHAIRMAN. And if the department makes use of it, it ought to contribute to it?

Mr. GRAVES. Yes, sir; and, of course, a great deal of our work is of direct benefit anyway to those departments.

The CHAIRMAN. Then you propose to extend the work along those lines?

Mr. GRAVES. Yes.

The CHAIRMAN. We have a number of communications on the subject. There seems to be an urgent demand for an increase in this item. The increase asked for is very large. We would like to know just why the increase should be granted.

Mr. GRAVES. I think, if I can briefly summarize the different lines of work which would be involved in this increase, it will answer your questions, and then I can file with the committee additional detailed information.

The CHAIRMAN. If you can do so briefly, state why the appropriation is increased.

Mr. GRAVES. We wish, first of all, to extend the work of testing the mechanical properties of wood. The proper use of wood in general construction or other purposes where strength is a factor depends on a knowledge of its mechanical properties. Moreover, it is important to test the strength of woods that are subjected to various treatment like kiln-drying, use of wood preservatives, and the application of fireproofing materials. These may have an effect on strength.

We wish further to make additional tests on the built-up or fabricated beams and columns and on such materials as plywood and articles made by gluing together small or thin sections of wood. Lamination presents a big possibility in the use of the smaller materials where to-day we are using high-grade lumber from the original forests. There is thus offered a very great opportunity for the saving of material and reducing the drain on our forests.

The CHAIRMAN. What have you accomplished along that line?

Mr. GRAVES. Most of the work has been done in connection with the war. Thus, in constructing parts of airplanes, large, perfect pieces, taken mostly from the Pacific coast, were formerly used. As a result of our experiments, the Army and Navy, about the close of the war, had already accepted our specifications for splicing and lamination in the construction of the beams and other parts of airplanes. This meant a great saving of highly specialized and costly wood. We have been experimenting with parts of vehicles, with the idea of a built-up tongue, bolsters, and other parts of wagons and other vehicles. If this can be worked out it will be of great importance, because of the growing shortage of hardwoods. I think some mention was made in the hearings of shoe lasts, athletic goods, and a great variety of articles which now require the use of very high-grade hardwoods and other species. They now require solid blocks of high quality, which can be perfectly well built up by the use of small or thin material. Without knowledge of the strength and reaction to various kinds of stress, manufacturers and users will not adopt these devices. They will be conservative, still drawing upon distant and expensive supplies, when they might be using material nearer at hand and producing an article as serviceable as that from the highest grade virgin trees. The same principles apply to getting into use species of trees now little known. Their use reduces the drain on the forests as a whole. The studies in mechanical properties of wood lay the foundation for such economic forest utilization.

The next heading is that of kiln drying. There is certainly a great loss in an unintelligent seasoning of wood. This loss has been estimated at from \$25,000,000 to \$50,000,000. I believe that it is nearer the latter figure. Half of the loss is unnecessary.

Mr. JONES. That waste of kiln drying is accounted for in what way? What is the waste in kiln drying?

Mr. GRAVES. There is an unnecessarily large amount of checking in the drying, partly due to defective kilns, partly due to poor operation. The operators of the kilns often do not know how to meet special conditions, so that the material comes out of the kiln with a very much larger loss in checking than is necessary. Such work as we have already done certainly demonstrates that a great reduction in this loss is possible. It is a question of intelligent application of the principles of kiln drying to different species.

Mr. JONES. Are not the kiln-drying manufacturers, the manufacturers of dry kilns, experimenting on that?

Mr. GRAVES. To some extent; but they are not getting at the basic facts and fail usually to attack the problems that depend for their solution upon a knowledge of some very complex physical laws. The loss certainly continues and I believe will not be remedied without investigations and demonstrations by such a public agency as the Forest Products Laboratory.

The CHAIRMAN. You have referred to a most important feature. Will you include the other suggestions in your remarks or do you wish to go on with your statement?

Mr. GRAVES. I will be very glad to file this material in the text of the hearings if you wish to save time.

Mr. HUTCHINSON. In 1919 you had 417 men on this work and the salary list was \$70,000. Now you have 201 men and the salary list is \$269,000.

Mr. GRAVES. Of course, this apparent discrepancy is due to the special work for the Army and the Navy. Many of our regular force worked part time on the military problems that were paid for from Army and Navy funds.

Mr. HUTCHINSON. This statement ought to be put in so we can understand it. You say 417 men, \$70,000. Now you have 201 men and the salary list is \$269,000. It does not appear very good.

Mr. GRAVES. That was a question of bookkeeping. The men who are paid part or all of their time from the regular fund are recorded here. So many devoted part time to Army and Navy work that the actual number of employees is large. The other part of their time was paid from the cooperative funds from the Army and Navy.

Mr. HUTCHINSON. Ought not this statement show where the salary comes from?

Mr. GRAVES. We would have to add another column showing the amount of the time that was charged against the Army and Navy work. To that extent the statement is incomplete.

In addition to the strength tests of plywoods and other laminated materials which have been mentioned, a large amount of work is necessary on the technique of their construction, including the development and application of more satisfactory and dependable glues, and the selection of materials, involving such questions as the extent to which low-grade materials may be substituted for high-grade materials for particular classes of uses. This is practically a new field in which the possibilities of decreasing the reduction of waste are so great that a large amount of work is justified.

It is estimated that unnecessary loss as a direct result of poorly designed and poorly constructed containers amounts to approximately \$100,000,000 for domestic shipments alone. The public pays this bill. Poor methods of boxing, crating, and packing are reported by the Consular Service to be interfering seriously with the development of our export trade, and the unnecessary losses here are also very large.

The public, shippers, and purchasers of practically all classes of commodities, exporters, railroads, and express companies, other Government departments, as well as box and lumber manufacturers, are keenly interested in getting additional information which will reduce this great loss. An illustration of the interest in this work is a meet-

ing held at Chicago early in December where not less than 600 merchants and others met and considered this problem for an entire afternoon with particular reference to the improvement of containers, boxes, and crates made of wood.

I have spoken of some results already obtained. I would like to supplement this by saying that the application by the War Department alone during the war of results secured in our tests saved to the United States much more than the entire cost of all forest products investigations which we have made.

What are most needed now are tests on an increased scale to develop the fundamental laws governing the relation between kinds of woods, thickness of material, methods of nailing, strapping, cleating, etc., the size of the containers, and commodities to be shipped. These tests should be made for such different classes of containers as wooden boxes, solid and corrugated fiber boxes, crates, etc. The public benefit to be derived from such tests will cover their cost many times over. The universal demand is that the work be done by a single authoritative impartial agency such as the Forest Service.

The total loss in the production of lumber is very great. Of the material in the tree about one-third actually appears in the form of seasoned rough lumber. There is additional waste which ranges from 10 to 35 per cent or more, and averages conservatively 25 per cent. In such an important industry, for example, as vehicle making, the single operation of bending heavy oak often results in a loss of 50 per cent of high-grade selected material. On the average, for every board foot of lumber that goes into a finished product at least three times as much material is wasted. Practical considerations make difficult a reduction of this loss where the only product is boards.

The manufacture of by-products by various chemical industries offers the best and most feasible means of cutting down this waste. The public interest in reducing this waste is greater than that of any single industry, and the problem will be attacked comprehensively by no other than a public agency. The chemistry of our American woods must be studied exhaustively in its bearing on the use of waste in the distillation of hardwoods, and the manufacture of paper, alcohols, and other chemical products.

The chemical studies include those preservatives which are of great importance in extending the life of railroad ties and other articles. Preservatives not only prolong the life of treated woods but make it possible to utilize less durable species in place of those now used. If full use were made of preservative processes in treating ties, poles, posts, piling, mine timbers, shingles, and lumber which is to be exposed to the weather, it would probably be possible to reduce the drain upon our forests by several billion feet, worth in the neighborhood of \$75,000,000. Similar striking figures could be given for saving from loss by fire by the development of practical and reasonably cheap fire-retarding or fire-resisting wood coating or paint. The loss by burning of wooden structures in the country is something like \$2,000,000 a year.

One of the points where our industries to-day are failing is in connection with industrial processes with particular reference to raw materials. It is essential that the Forest Products Laboratory have information regarding industrial processes in making their basic research practically available. To apply strictly laboratory investi-

gations and to determine how they can be made to improve industrial processes and reduce wastes and costs, it is necessary to know what these processes are that are now in use.

This applies to such industries as the pulp industry, distillation of hardwoods, processes of turpentine particularly in the woods, and in lumber manufacture itself. Present practice in most of the wood manufacturing and using industries is at present based largely or entirely on rule-of-thumb methods. Some questions as the grading of lumber, which is now chaotic, will never be worked out satisfactorily until the public requirements are taken into account by some public agency such as the Forest Service.

It is to reduce the losses indicated in the foregoing that makes it urgent to extend the investigation work at the laboratory. Every foot of lumber saved means a reduction in the drain on the forests and our waning supplies of high-grade material.

I believe that these investigations should be undertaken by the Federal Government. Wood was one of the materials earliest used by man, and to-day practically its entire manufacture and use is controlled by rule-of-thumb methods. In short, when left to individual initiative nothing in the way of scientific research has been done, and little or nothing will be done if left to private initiative. Public action is just as necessary in these directions as in agriculture and for much the same reasons. Enough has already been accomplished by the Forest Products Laboratory with a very inadequate force at its command to show the value and the necessity for such work. One of the great lessons of the war has been the value of research, and the nations which win out in post-war competition will have to base their industry on the results of technical investigations. This is just as true of the wood-manufacturing and wood-using industries as any others. The question is one of public interest even more than of interest to the industries themselves. In due time the industries can be forced to do a great deal of work themselves, although it will always be necessary for the Government to conduct the more fundamental studies. We can make our wood industries the most or the least efficient and progressive in the world by the extent to which we furnish a technical basis for their methods and utilization.

The work we have done demonstrates its value. The demands for its extension by wood users indicates its practical usefulness. In many cases the work is fragmentary and on too small a scale. It is to enlarge and extend it, and to get the results into practice, that we need additional funds.

MORNING SESSION CONTINUED.

THURSDAY, DECEMBER 18, 1919.

FOREST SERVICE—Continued.

**STATEMENT OF MR. JAMES T. JARDINE, INSPECTOR OF GRAZING,
FOREST SERVICE, DEPARTMENT OF AGRICULTURE.**

The CHAIRMAN. What is next, Col. Graves?

MR. GRAVES. I have asked Mr. Jardine to explain the purpose of item 245, page 132, "for experiments and investigations of range conditions within national forests or elsewhere on the public range,

and of methods for improving the range by reseeding, regulation of grazing, and other means, \$60,000."

The CHAIRMAN. We will hear Mr. Jardine. Are you with the Forest Service, Mr. Jardine?

Mr. JARDINE. Yes, sir. The best way that I can explain the needs of this work is to say that we are developing, managing, and utilizing the grazing resources of the national forests on approximately 125,000,000 acres of the roughest country in the United States. Much of it as late as 1907 was considered nonusable; much of it was entirely overgrazed. Stock were handled in large numbers in ways that were entirely destructive to the vegetation. Since 1907 the demand for grazing has increased nearly double. The number of stock on the national forests has increased approximately 45 per cent.

Mr. McLAUGHLIN of Michigan. Within what time?

Mr. JARDINE. Since 1907. In 1907 range investigations by the Forest Service were first started. Those were about the first, if not the first, along this line in the world. One of the purposes was to investigate the possibility of improving the method of handling approximately 7,000,000 sheep over these rough mountain ranges, so as to minimize the damage to timber and to the watershed and to protect and utilize this grazing resource as fully as possible.

We did four years of investigation by simply living with the sheep and observing their natural habits, and as a result of these investigations we were able to suggest a change in the method of handling sheep which would increase the grazing capacity of the land about 15 per cent and the weight of lambs 5 to 10 pounds.

Another main purpose of the investigations begun in 1907 was to work out a system of range utilization based upon the character and requirements of the vegetation which makes up the range forage crop. The practice had been to turn stock onto the range without regard to numbers or proper season of grazing. Our work on the forest ranges was to determine the character of range best suited to sheep and that best for cattle; the seasons during which sheep range and cattle range should be grazed; the number of stock which might be grazed; and methods of securing natural seeding of the range as well as the possibility of seeding to cultivated forage plants. These investigations were conducted in one locality to determine fundamental principles. Then came the difficulty of convincing the stockmen and of working out practical means of putting these fundamental principles into application over the national forests.

Mr. McLAUGHLIN of Michigan. That word "investigation" is a very big word. What do you do?

Mr. JARDINE. In the handling of sheep, I personally was assigned to construct an animal-proof fence 100 miles from the railroad in some of the roughest country in America, where the methods of handling sheep were distinctive to the range. I was assigned to investigate the possibility of applying a paddock or pasture system of management similar to what is applied in Australia. I lived with those sheep from 4 o'clock in the morning until night for four summers, studying their natural habits when allowed their freedom under fence and what would be the result of interfering

with them by herders and of not interfering with them in the way of range-carrying capacity, growth of sheep, losses of sheep, and injury to the range.

Mr. McLAUGHLIN of Michigan. How did you interfere?

Mr. JARDINE. The custom was to have 1,600 to 2,500 head of sheep with one herder and two to six dogs. They were constantly rounding them up in a jam and spreading them out. This running and massing would trample out a great deal of the vegetation; sometimes 50 per cent of the vegetation was wasted in this way. The sheep were driven each day to and from a central bedding ground; they were driven 4 or 5 miles from the bedding ground to feed and back to camp. The result was just the same as it is when there are too many cattle collected together at one watering place; they kill the vegetation from the watering place out. In some instances the range was denuded for one-quarter to one-half mile around the bedding ground.

Mr. TINCHER. You mean that they kill out the grass?

Mr. JARDINE. They not only kill out the grass but the trees, the small trees, and bring on erosion, which fills up the reservoirs below.

The CHAIRMAN. What is your remedy?

Mr. JARDINE. The remedy was this: That, instead of bedding those sheep at one place for 10 or 15 days at a time, we said that it was practicable to move them about over the range, that the sheep can be bedded wherever night overtakes them, and, instead of close-herding the sheep, the herders can keep out around them so that the sheep graze in open formation and minimize waste of forage by trampling. The herder can put four days' provisions on a burro and go out with the sheep. The herder gets up in the morning, makes himself a cup of coffee, and starts out with the sheep. About 9 o'clock they stop for rest. He will have a keg of water and some food on the burro. He will unpack the burro and fix his breakfast, and does his day's work. Probably about 3 o'clock the sheep start feeding again and graze until dark.

The CHAIRMAN. How about watering the sheep?

Mr. JARDINE. We have records of sheep going from the time they were lambs until they were marketed in Omaha without any water except the moisture in the vegetation, the dew, fog, and rains; with no places to drink from. It is not necessary to drive the sheep up and down steep hills every day to water, but they can work out and around and come naturally to water, that is, circle around from the water and back.

Mr. McLAUGHLIN of Michigan. In some cases they raise cattle in that way, and the cattle grow to maturity and make fine beef without ever having had a drink of water.

Mr. JARDINE. The amount of drinking water necessary depends very largely upon the character of vegetation, the altitude, the temperature, and the way the sheep are handled.

The CHAIRMAN. Do the sheep do so well without water as they do with it?

Mr. JARDINE. Not unless the vegetation is very succulent, and the atmosphere is cool, or there is a good deal of fog or rain.

Mr. McLAUGHLIN of Michigan. After you work out this proposition with your own men, what about the private interests; what do the people on the ranges do?

Mr. JARDINE. There is our big difficulty, and that is a point I was just coming to. The experiments were carried on in one locality to work out principles of management. Then local demonstrations are usually necessary to work out local variations in practice and to convince stockmen that the methods are practicable. At first stockmen believed that the methods proposed for handling sheep could not be followed. Now probably 60 per cent of the nearly 8,000,000 sheep grazed on the national forests are handled under that system, and that change has been brought about based upon these investigations.

In the handling of cattle we have even a more difficult problem than we have in the handling of sheep. The number of cattle grazed on the national forests since 1914 has increased 37 per cent. The ranges on which the cattle run vary, in some places, from 5,000 feet above sea level up to as high as 11,000 feet within 7 miles. You can imagine the variation in such range and what may happen from turning loose 2,500,000 stock when vegetation is ready at the lower limits of the range, without control of the movements of the stock. The result is that in some places the range is overstocked, and in some places it is understocked, but much of the range is grazed too early.

As a result of the war emergency the demand for range increased. We have now taken care of about all the stock that the ranges can carry under the present conditions and in some places too many. It is like taking a big farm without improvements. If you want to hold it without improvements, that is one thing, and reductions in number of stock may be necessary; but if you want to go on with improvements and efficient management and utilization, that is another.

The CHAIRMAN. How many miles of fence has been constructed by the Government.

Mr. JARDINE. About 1,600 miles for range improvements.

Mr. McLAUGHLIN of Michigan. What kind of fence?

Mr. JARDINE. The fences are usually of barbed wire, with three, four, or five wires. In some sections smooth wire is used.

Mr. McLAUGHLIN of Michigan. How near together are the posts?

Mr. JARDINE. The posts, ordinarily, are about 16 feet apart, although that varies a good deal according to the topography and the availability of materials. Sometimes they are closer together, but in the level country we ordinarily figure on about 16 feet.

The CHAIRMAN. Are you contemplating building more fences?

Mr. JARDINE. Yes, sir.

The CHAIRMAN. How much?

Mr. JARDINE. That comes under another item.

The CHAIRMAN. Can you give us the figures now conveniently?

Mr. JARDINE. The fences are not to be constructed out of this item.

The CHAIRMAN. Never mind if you have not the figures.

Mr. TINCHER. You had an appropriation of \$18,420 for 1912, and you are asking this year for \$60,000. What else is there that you want to find out about the sheep?

Mr. JARDINE. We started in on the sheep. Some experiments are being carried on to secure better methods of handling the sheep under

varying local conditions—the topography of the country, the timber, lack of water, predatory animals, and so on. We will have to continue investigations to work out the local adaptations of the general plan.

Mr. TINCHER. Are you attempting to improve the range by re-seeding?

Mr. JARDINE. This item covers the handling of cattle, handling of sheep, natural revegetation, artificial reseeded, water development, effect of grazing upon timber growth and watersheds, eradication of poisonous plants, and other problems incident to the regulation of grazing.

Mr. TINCHER. Have you reseeded any of these lands artificially?

Mr. JARDINE. We have conducted between five and six hundred tests, some successful tests in the mountain meadows and other areas where the soil and moisture are much better than average.

Mr. TINCHER. When the stock kill out the grass another grass crop will come in its place naturally?

Mr. JARDINE. That depends on the type of management and the length of time.

Mr. TINCHER. What percentage of this money is going to be expended on the forest reserves in investigations as to the natural grasses and reseeded?

Mr. JARDINE. At the present state of our information we are not going beyond the mountain meadows in seeding ranges to cultivated forage plants. I should say—I don't know—but probably not more than 5 per cent of the total area is of this character. We will not be able to go further until we have more definite information as to species best suited to the grazing lands.

Mr. TINCHER. What do you mean by mountain meadows?

Mr. JARDINE. In the national forests there are areas which are really meadows in character. They are small, varying from half an acre to possibly 100 acres or more.

Mr. TINCHER. Have you reseeded some of these meadows?

Mr. JARDINE. We have reseeded some of them—a very small area.

Mr. TINCHER. As a matter of fact, if the stock tramps out the grass in one place the grass that comes naturally in its place is just as liable to be better rather than worse than the other grass, is it not?

Mr. JARDINE. No, sir.

Mr. TINCHER. Then why haven't you artificially reseeded that range?

Mr. JARDINE. For the simple reason that thus far the dollars invested in the national ranges can be more profitably used for range improvements other than reseeded. More cattle can be taken care of per dollar invested, and our dollars invested have never met the needs.

Mr. TINCHER. The Government don't own any cattle?

Mr. JARDINE. No, sir.

Mr. TINCHER. Nor sheep?

Mr. JARDINE. No, sir.

Mr. TINCHER. What is the character of the forests; I mean what is the difference between the forests where the sheep are grazed?

Mr. JARDINE. In many forests where sheep are grazed the forests are so dense that you can not ride through them; oftentimes you have to crawl through.

Mr. RUBEY. The grass will not grow very rapidly in places like that.

Mr. JARDINE. The forage ordinarily is weeds and browse that grow in the shade.

Mr. McLAUGHLIN of Michigan. In your experiments what kind of grass seed do you use?

Mr. JARDINE. We have had experiments in the use of timothy, clover, blue grass, Italian rye grass, broom grass, and many others.

Mr. McLAUGHLIN of Michigan. Which does the best?

Mr. JARDINE. Timothy, economically, is the best.

Mr. RUBEY. I was riding on a train through Nevada some time ago and a man took me out on the back vestibule and pointed out and said, "We are passing through a forest reserve." There were no trees in sight, and I thought possibly that was one of the forest reserves over which you were grazing these cattle and sheep.

Mr. JARDINE. I want to explain just a little more about this cattle business. A cattle unit will probably graze 800 to 2,000 cattle. These ranges vary so much in character that every range has its individual problems. We have worked out a number of problems, fundamentally, in a few places. We now have the difficulty of adapting those methods to the different localities, broadly speaking. We have not had the men available to go out and make the individual tests.

The increase in the demand for grazing is very rapid, and we should have at least one man in each of the six western districts.

Mr. TINCHER. Do you think the Government ought to spend any money in investigating the range conditions within the Colorado national forests?

Mr. JARDINE. I certainly think that if the grazing resources are being sold and utilized and the Government is directing the utilization, the Government ought to do it as a matter of economy.

Mr. McLAUGHLIN of Nebraska. In that mountain country, can you successfully reseed with timothy any of this land you speak of?

Mr. JARDINE. We can on small acreage. A dollar spent for that will not bring as much return to the Government in grazing cattle, or as much to the stock industry, as will a dollar spent in some of the other work discussed.

Mr. McLAUGHLIN of Nebraska. The only places you can grow grass would be on river bottoms and areas like that?

Mr. JARDINE. No, sir; it would be in those mountain meadows, little valleys, or narrow strips along the streams.

Mr. TINCHER. Native grass grows on the mountains. What I don't understand about these expenditures is what will the Government derive by spending money in Colorado to investigate these range conditions or reseed any part of the Rocky Mountains. The stockmen there understand the range conditions, don't they?

Mr. JARDINE. The stockmen do not understand all the conditions. The stockmen understand something about reseeding, but they do not understand reseeding or range management problems under all the conditions. The stockmen frequently urge reseeding where it will not be good business to seed.

Mr. TINCHER. What would be the difference of appropriating money for that and appropriating money to go into Iowa or Illinois to educate the stockmen how to handle their stock.

Mr. JARDINE. The Government does not own the lands in Iowa or Illinois, while in Colorado it does. This is only on Government land.

Mr. TINCHER. I understand, but the use the Government is making of this land is for the growing of forests.

Mr. GRAVES. May I state one thing? One of the points that we are most interested in, in the whole situation, is to guard against overstocking these national forests, which were set aside primarily as forests, for the growing of timber and the protecting of the watershed. Forestry and watershed protection are the two great primary purposes of the enabling act of the national forests. Grazing is a secondary use and must be subordinated to the interests of the tree growth. I want to be perfectly certain that the use of these lands in the Rocky Mountains for grazing does not interfere with the growth of the trees. In many places where the old-fashioned grazing was practiced, it not only hurt the forest but it also was the cause of serious erosion. There are a great many meadows in Colorado to-day where you can see the old furrows and the old gullies where erosion had started and which are now being restored under proper regulation of the grazing lands. The protection of these slopes is important; and it can not be accomplished unless the grazing is done right. That seems to me the big thing.

Mr. TINCHER. Your idea, then, is to start regular grazing and cover most of the Federal forests?

Mr. GRAVES. Of course, the administration comes under the other items of the bill, as the salaries of the administrative officers; but technical knowledge forms our basis for good administration.

Mr. TINCHER. What machinery have you for working this out in the forests?

Mr. GRAVES. That is done primarily through the local officers, supervisors, range inspectors, and they rely upon the technical, scientific men to help them on their working out of the plans.

Mr. TINCHER. The Government knows what is grazing land; what regulations there ought to be with reference to grazing, does it not?

Mr. GRAVES. It is a pretty difficult thing to take, say, a thousand men and expect them all to be expert grazing men.

Mr. TINCHER. Suppose I owned this land instead of the Government, and I started out in 1912 to find out about grazing in the forests; I certainly ought to know by this time to what extent they ought to be grazed. Does not the Government know now?

Mr. GRAVES. We know the general plans, but in the application of them—

Mr. TINCHER (interposing). You have a right under the law to regulate that.

Mr. GRAVES. I have in mind a number of forests on which I need to have some grazing experts study the conditions as to whether we can continue to carry the present number of stock without injury. Experts ought to visit and study those forests who have more special knowledge than the local forestry officers have. That is what Mr.

Jardine has in mind when he speaks of the local application of these studies.

Mr. JARDINE. I think the most difficult thing for us to determine is the number of stock each range will support under the management we can expect. This is largely an individual problem for each range and requires study.

Mr. McLAUGHLIN of Michigan. Of course, what you do in Colorado is on the national forests?

Mr. JARDINE. Yes, sir.

Mr. McLAUGHLIN of Michigan. If that benefits the private owners it is because they learn what you are doing and apply it in their work?

Mr. JARDINE. And this is done, as pointed out by Col. Graves, principally to insure the forests not being injured. We must have better handling of stock or make a reduction in numbers. A reduction of 4 per cent in the number of stock grazed, on the basis of the present fees, would amount to over \$100,000 in fees annually, and the reduction of 4 per cent would be very small.

Mr. McLAUGHLIN of Michigan. As a result of your study, your experimentation, and methods of operation, the grazing possibilities of those lands have greatly increased, have they not?

Mr. JARDINE. Yes, sir.

Mr. McLAUGHLIN of Michigan. So that there are many more stock in better shape than on the private lands?

Mr. JARDINE. We have increased approximately 45 per cent since 1907. Of this we estimate that one-third is due to better handling of stock and about 50 per cent to better management of the grazing, giving vegetation a chance to grow, and making the best use of it. The remainder is due to the opening up of areas which prior to 1907 were not in use.

Mr. McLAUGHLIN of Michigan. As a result of your work, the national grazing areas are better for stock than the lands that are owned by private parties?

Mr. JARDINE. In many cases, yes, sir; in some cases, I do not believe that is true because some men have protected their own lands by using the outside public domain.

Mr. McLAUGHLIN of Michigan. As a general proposition, the grazing on the national forest reserves is worth more than the grazing on private lands, and I think we charge only one-half what is charged by private owners.

Mr. JARDINE. I wouldn't say that it is worth more as grazing land than the private lands. I have been a stockman, and I should say that I would take the private lands.

Mr. McLAUGHLIN of Michigan. Why?

Mr. JARDINE. Necessarily there are restrictions as to grazing on the national forests. We have to protect the forests, the watersheds, the game resources, and provide for recreational use of the national forests; we have more restrictions as to seasons of grazing and the handling of the stock on the range; the Government lands are rough and unfenced, making it difficult to prevent losses.

Mr. McLAUGHLIN of Michigan. But you are carrying on this work for the purpose of protecting vegetation, increasing the quantity of it?

Mr. JARDINE. Yes, sir.

Mr. McLAUGHLIN of Michigan. You are improving this grazing; it is better for the animals that are put on the land?

Mr. JARDINE. Yes, sir.

Mr. McLAUGHLIN of Michigan. And the grass is improving?

Mr. JARDINE. Yes, sir; I think so.

Mr. McLAUGHLIN of Michigan. Unless your work has been helpful along those lines some one might be harsh enough to say that the money had been wasted.

Mr. JARDINE. The money has not been wasted. Many private owners have adopted our methods. Some of the biggest live-stock growers in Nevada have employed our experts and adapted our methods, both in the management of stock and in the survey and classification of the areas.

Mr. McLAUGHLIN of Michigan. You say there are restrictions as to the use of the grazing lands owned by the Government that reduce the value for grazing purposes. There are restrictions as to the number of animals that will be permitted to graze on a given area, and there are other restrictions that you think would lessen the desirability of grazing on the Federal lands.

Mr. GRAVES. There are certain restrictions.

Mr. McLAUGHLIN of Michigan. Tell us something about those restrictions.

Mr. GRAVES. The restrictions provide that there may be certain reductions made, down to a certain limit, in order to provide for the new applicants, and particularly the small owners.

Mr. McLAUGHLIN of Michigan. What do you mean by certain limits? What are certain limits?

Mr. GRAVES. Reductions may be made at any time where it is found that the stock are injuring the forest lands.

Mr. McLAUGHLIN of Michigan. Reducing the time of grazing or the numbers of stock?

Mr. GRAVES. Reducing the number of stock for which they have been granted a permit.

Mr. TINCHER. How many acres are allowed in Colorado to each head of stock?

Mr. JARDINE. It varies. All the way from about 2 acres a head per month for cattle to probably as much as 10 acres.

Mr. TINCHER. You evidently know how many it takes in Colorado?

Mr. JARDINE. We can not know a quarter of a mile in advance what the type of grazing will be without examination.

Mr. TINCHER. Has the income from the forest reserves on account of grazing increased 45 per cent during the last few years?

Mr. JARDINE. We have increased the number of stock on a given acreage 45 per cent since 1907.

Mr. TINCHER. That increases the income 45 per cent?

Mr. JARDINE. The fees have been advanced.

Mr. TINCHER. How much has the increase been to the Government; to what extent has the Government income from the use of the forest reserves been increased, say, during the last four years; what percentage?

Mr. McLAUGHLIN of Michigan. Perhaps it would be better to put the figures into the record. I would like to follow the matter up. The

committee has been severely attacked, and the policies of the department have been severely attacked, on the floor of the House, because the charge made by the Federal Government for the use of grazing land is only about one-half the charge made by States and by private interests. We wish to be able to answer that criticism if we can. You say it is due to restrictions placed upon the use of the lands; that the Government places restrictions upon the use of these grazing lands that are not imposed upon those who use other lands. I wish you would give us that in detail so that we can understand it thoroughly. Just to say that there are certain restrictions, or certain limitations, does not answer the question at all. Will you please give us that information in detail so as to enable us to answer anyone who may make inquiries.

**STATEMENT OF MR. E. A. SHERMAN, ASSISTANT FORESTER,
FOREST SERVICE, DEPARTMENT OF AGRICULTURE.**

Mr. SHERMAN. In the first place, the permits are subject to any reduction which may be necessary in order to stop damage, either to the forage, to the forests, or to the watershed. A reduction of 50 per cent may be necessary, or the stock may be thrown off of the lands entirely, in order to protect the range and the watershed.

Mr. McLAUGHLIN of Michigan. Has that been found necessary, and has that restriction been applied in such a way or to such an extent that those who use the land go to you and demand a reduction on that account?

Mr. SHERMAN. That has been necessary in some cases. In addition to that, each permittee owning stock not in excess of the protective limit and that is usually a very small number—20 head of cattle or a thousand head of sheep) is subject to a reduction of not exceeding 20 per cent in order to permit small owners or new settlers to have grazing lands. In addition to that, the range upon which the permittee runs his stock being on public lands is subject to acquisition under certain conditions, in accordance with the land laws, and are subject to acquisition at any time under the mineral laws. Very frequently lands which are very desirable for an individual's allotment may be located as mineral claims and the most available water to the range controlled, the stock kept off, and the man's plans for the management and handling of his stock interfered with.

Mr. McLAUGHLIN of Michigan. At any time a mineral discovery is made the prospector can locate on the land and take jurisdiction, and his jurisdiction is absolute?

Mr. SHERMAN. Yes, sir.

Mr. McLAUGHLIN of Michigan. Has that happened so often that it is a reason for those who would use the lands to demand a reduction?

Mr. SHERMAN. That is one of the elements of uncertainty that the permittee encounters.

The CHAIRMAN. How large a claim may the prospectors take up?

Mr. SHERMAN. The miner and seven associates can locate 160 acres, that is, eight claims of 20 acres each. He can locate them in most

any form. He can locate the 20 acres so as to control the watering places and the most desirable grazing land.

Mr. McLAUGHLIN of Michigan. Can you tell us in how many cases men's leases have been interfered with by the locating of mining claims?

Mr. SHERMAN. I would be unable to say.

Mr. McLAUGHLIN of Michigan. Do you know of any?

Mr. SHERMAN. I do not recall any. Several years ago, when I was district forester at Ogden, one of the most important grazing districts in the Humboldt Forest was interfered with in that way, by a miner taking up a string of claims along a creek.

Mr. McLAUGHLIN of Michigan. Do you know of any other case since that time?

Mr. SHERMAN. In that case the permittee had to go in and pay the miner a good round sum in order to be allowed to water his stock.

Mr. McLAUGHLIN of Michigan. What year was that?

Mr. SHERMAN. That was in 1913 or 1914.

Mr. McLAUGHLIN of Michigan. Do you recall any similar cases where a man's leases have been interfered with; or do you know of any other cases where they are liable to be interfered with?

Mr. SHERMAN. I don't recall any other cases. I think there have been many such cases.

Mr. McLAUGHLIN of Michigan. What other restrictions are there which will interfere with or reduce the value of forest range land that might not apply to private lands?

Mr. SHERMAN. Another point is the fact that the permit is an annual permit and is not given for a definite length of time. On some forests permits are given for five years, subject to these reductions I speak of; but this is simply an annual permit.

Mr. McLAUGHLIN of Michigan. What is the custom in leasing private lands?

Mr. SHERMAN. The custom in leasing private lands, of course, is that it is absolute for one year, or ten years, or whatever definite period of time the lease may run.

Mr. McLAUGHLIN of Michigan. You say that some of the leases are given for one year, and that on some reservations you give leases for five years. Is there very much difference, then, between your method of leasing (as to time, I mean) and the method of the private owners?

Mr. GRAVES. The stockmen claim there is.

Mr. McLAUGHLIN of Michigan. Will you state, if you know, what the difference is between the grazing fee charged by the Federal Government and the grazing fee charged by others?

Mr. SHERMAN. The statement already made that private owners charge double the amount that the Government charges is, I believe, approximately correct.

Mr. McLAUGHLIN of Michigan. The Government gets approximately one-half as much as the others charge?

Mr. GRAVES. When this study was made, about three years ago, Mr. McLaughlin, and the present standard determined upon, the fees we are getting now were about two-thirds of the average fee for similar lands privately owned. This extra third represents the dif-

ference in desirability of the public lands as compared with the private lands.

The CHAIRMAN. I believe you stated that there was a small amount of land owned by private owners, or States, which come in competition with this grazing land on the forest reserves?

Mr. GRAVES. There are not very many large compact tracts of such land immediately adjacent in the national forests. There are small tracts, sections here and there.

The CHAIRMAN. It is hardly worth while to consider how much the fee is on the small amount of land owned by the private parties, is it?

Mr. GRAVES. It is only within the last few years that some of that land has been leased.

The CHAIRMAN. Those are small tracts, and afford no basis of comparison with the forest lands?

Mr. GRAVES. There is nothing to compare on as large a scale.

The CHAIRMAN. Are they fenced?

Mr. GRAVES. No.

Mr. McLAUGHLIN of Michigan. Are the large tracts that are owned by States leased by the States?

Mr. GRAVES. Yes, sir.

Mr. McLAUGHLIN of Michigan. As to those lands which are owned by the State, are they subject to purchase from the States?

Mr. GRAVES. The States sell them; yes, sir.

Mr. McLAUGHLIN of Michigan. In case the State sold the land, the lease would have to be terminated the same as a lease with the Government would have to be terminated?

Mr. GRAVES. Yes, sir.

Mr. McLAUGHLIN of Michigan. So that the handicap is the same with regard to the State lands as with the Federal lands; is that true?

Mr. GRAVES. I think the difference would be that, where anyone leases from the State, as I understand the matter, they are practically without any limitation as to the number of stock or anything else.

Mr. McLAUGHLIN of Michigan. As to the acquisition of land from the State by anyone who wishes to purchase it, are the States authorized to sell?

Mr. GRAVES. Yes, sir; a State may sell its land.

Mr. McLAUGHLIN of Michigan. So that the lease that a State makes is subject to the same restrictions as that which you make?

Mr. SHERMAN. The leases are not subject to the same restrictions. In the first place, the State lands are not subject to the operation of the mining laws, and the State does not sell during the period for which the lease is effective. Usually, also, when the States does sell, the sale is made at public auction of some sort to the highest bidder, so that the person who leases, if he wishes, can protect himself by buying the land. The State leases ordinarily are not subject to restrictions as to seasons of grazing, numbers of stock, or the way the stock is handled. The lessee may also fence at will to exclude other stock or to facilitate the handling of his own stock.

Mr. McLAUGHLIN of Michigan. If a State makes a lease of grazing lands for 10 years, do you mean to say that during that time a mining claim can not be located on the State lands?

Mr. SHERMAN. A mining claim can not under any condition be located on State land; it is not subject to the mining laws.

Mr. McLAUGHLIN of Michigan. It is not subject to the mining laws of the State?

Mr. SHERMAN. The State makes no provision—or, at least, none of the Western States make any provision—for any of their land being subject to prospecting entries. They only lease and sell.

Mr. McLAUGHLIN of Michigan. Then, during the 10 years, if mineral should be discovered on land leased for grazing, the State can not sell it, no matter what price may be offered for it?

Mr. SHERMAN. I would not say that. They probably have some provision for disposing of the lands under lease under extraordinary conditions of that sort, if the situation justifies it.

The CHAIRMAN. The opening up of tracts of 160 acres would not interfere with the large reserve of a million acres, would it?

Mr. SHERMAN. It would not interfere with the large reserve, but it might very seriously interfere with the use of the range within a certain stockman's allotments.

The CHAIRMAN. By the use of the water particularly?

Mr. SHERMAN. By controlling access to the water.

Mr. HUTCHINSON. Does the State spend any money in the way of keeping up these operations?

Mr. SHERMAN. I am not aware of any State that does.

Mr. HUTCHINSON. The Government does?

Mr. SHERMAN. The Government does that in a small way—in an experimental way.

Mr. HUTCHINSON. The State spends no money; it just lays the ground and lets it go?

Mr. SHERMAN. The State, of course, carries on its experimental work in connection with the experimental stations.

Mr. McLAUGHLIN of Michigan. For my part, I am very much obliged to this gentleman for making this explanation. It will enable us to see what has been done heretofore.

The CHAIRMAN. Thank you, Mr. Sherman.

STATEMENT OF MR. HENRY S. GRAVES, FORESTER AND CHIEF OF THE FOREST SERVICE, DEPARTMENT OF AGRICULTURE—Continued.

Mr. RUBEY. You have a pamphlet which you issue in the West, giving full information as to grazing inspections and all that sort of thing?

Mr. GRAVES. Yes.

Mr. RUBEY. Can you furnish the members of the committee with a copy?

Mr. GRAVES. I would be glad to.

Mr. RUBEY. I would like to have a copy of it.

The CHAIRMAN. Will you give us the character of the leases, with details as to the number of permits?

Mr. GRAVES. I can very easily insert that information in the record.

The CHAIRMAN. Will you state briefly, if you have the table before you, the number of leases for which permits have been granted?

Mr. GRAVES. I have not that matter here, but I can very easily furnish it to you.

The CHAIRMAN. I do not want the form, but merely a brief statement of the number of permits, the number of stock, etc.

Mr. GRAVES. You mean that is allowed by the individual?

The CHAIRMAN. Yes.

Mr. GRAVES. It is a very simple form, which gives him permission to use it.

The CHAIRMAN. I am not interested in that; I mean the number of cattle that may be grazed under a certain permit, the average number, and the largest number that can be grazed.

Mr. GRAVES. I think that would be shown in the matter that Mr. McLaughlin asked yesterday to be inserted in the record.

Mr. McLAUGHLIN of Michigan. Yes.

The CHAIRMAN. That should be in the record. You did not state the number of leases or permits.

Mr. GRAVES. No; I was going to insert that in the portion of yesterday's hearings among the material that Mr. McLaughlin asked for.

Mr. McLAUGHLIN of Michigan. In that connection, bear in mind I would like to have information as to the privileges settlers and individuals in those localities have of grazing for their own use and without charge, and so on.

Mr. GRAVES. I will note that down to be inserted together with the other material.

Mr. McLAUGHLIN of Michigan. In all cases, a man located out there is preferred in the matter of the leasing of the land, is he not?

Mr. GRAVES. He is given the preference. This information will be included with the data asked for yesterday.

STATEMENT OF MR. JAMES T. JARDINE, INSPECTOR OF GRAZING, FOREST SERVICE, DEPARTMENT OF AGRICULTURE—Continued.

Mr. TINCHER. Mr. Jardine has the figures on grazing that I was anxious to have in the hearings, and I would like to have them put in the record at this time. You have handed me some figures for grazing fees. They show receipts for the fiscal year 1914 of \$1,002,348.

Mr. JARDINE. Yes, sir.

Mr. TINCHER. And grazing fees for this fiscal year amounted to \$2,609,169.

Mr. JARDINE. Yes, sir.

Mr. TINCHER. An increase of 160 per cent?

Mr. JARDINE. Yes, sir.

Mr. TINCHER. Cattle and horses grazed in 1914, 1,620,261 head; sheep and goats, 7,618,802.

Mr. JARDINE. Yes, sir.

Mr. TINCHER. Cattle and horses grazed in 1919, 2,233,932; sheep and goats, 7,995,963.

Mr. JARDINE. Yes, sir.

Mr. TINCHER. The increase from 1914 has been in the number of cattle and horses grazed.

Mr. JARDINE. Yes, sir. There has been some increase in sheep and goats also.

Mr. TINCHER. A slight increase, but the main increase is in cattle and horses. The increased income to the Government has been 160 per cent.

Mr. JARDINE. Yes, sir; 160 per cent.

Mr. TINCHER. That is in the face of the fact that the increased cost to the owner of the live stock of this character for grazing in the grazing season, where they are not grazed upon Government lands, has been nearly 300 per cent in the same length of time.

Mr. JARDINE. A cost to him of doing that?

Mr. TINCHER. For grazing. For instance, the man who owns live stock has to have them grazed and does not have the benefit of a Government reservation for that purpose. How much increase would that be? It costs three times as much to graze now as it did in 1914?

Mr. JARDINE. That is not true where they have the pasture lands for part of the season.

Mr. TINCHER. That would be true if they rent the pasture lands or hire the grazing. You will find that is the experience of every man engaged in the live-stock business. They will tell you that there is a 300 per cent increase.

Mr. JARDINE. It is not 300 per cent for the grazing land. This increase given for the national forests, of course, does not include the cost of operating, the cost of handling, or the cost of range and feed for the seven to nine months the stock are not on the forest range.

Mr. TINCHER. What I mean is this, that where an individual is getting an animal pastured for \$5 for seven months in 1914, he pays \$14 in 1919. That has been the increase outside of Government operations.

The CHAIRMAN. In other words, outside of the reservation they pay \$14, and on the reservation they pay 72 cents.

Mr. TINCHER. I do not know what the figure is on the reservation.

The CHAIRMAN. That was the average last year.

Mr. TINCHER. My idea was not to have the record disclose that by spending a little money we had increased the income when, as a matter of fact, a man would be driven to the Government reservation by the increased cost of pasturing his live stock. There would be no reason why the Government should not raise the price of grazing on the reservation.

Mr. HUTCHINSON. I understood you to say that the increase in cattle is about 37 per cent.

Mr. JARDINE. Yes, sir; approximately 37 per cent since 1914.

Mr. HUTCHINSON. Have you ever given any thought to the reason for the constant increase in the price of meat?

Mr. ANDERSON. He refers to the cattle on the national forest range and the increase of cattle there.

Mr. JARDINE. That is, cattle on the national forest range.

Mr. ANDERSON. There is an increase of cattle there. Could you give us any reason why the price of meat is going up? I thought maybe it was going into storage.

The CHAIRMAN. If the fees were fixed at the State's present charge, you would have no trouble in leasing all that land, would you?

Mr. GRAVES. It would be quite possible to put the forest lands under competition and lease them to the highest bidder.

The CHAIRMAN. The charge could be adjusted by arbitrarily fixing your table of fees at three times the present rate, which would

in my opinion, a very reasonable
pay.

Mr. GRAVES. I question whether it
standpoint of a large number of
greatest number of our permittees
The CHAIRMAN. We might exempt
a charitable institution; but I think
could be made into a charitable insti-

Mr. GRAVES. There are, of course,
now being done along that line in the
number, free use of the grazing privi-
lock, and so on. I think it has al-
ready to give special assistance to set-

The CHAIRMAN. But the settlers
granted to settlers are very small in
permits of stockmen and speculators.

Mr. GRAVES. The number of permits
are local settlers is very large. I have
portion is, but it can be inserted. It

The CHAIRMAN. Does not that table
Mr. McLAUGHLIN of Michigan. The
these small owners is small compared
all others?

Mr. GRAVES. No, sir. A large proportion
small owners.

Mr. McLAUGHLIN of Michigan. The
permits?

Mr. GRAVES. And the number of permits
The CHAIRMAN. What is the average?

Mr. GRAVES. Do you recall that, Mr.

Mr. JARDINE. It varies. The average
of 2,500,000 head was 68 head the last

The CHAIRMAN. The average?

Mr. JARDINE. The average for all permits
for instance, in a number of forest

is less than 25 head. The average
National Forest is, as I understand

The CHAIRMAN. What do the settlers
ness—cultivate the lands and grow

Mr. JARDINE. They cultivate the lands
head of stock constitute their cash crop

Mr. ANDERSON. Do you mean home

Mr. JARDINE. Ordinarily, no. A few
which produce some feed, part of it

growing cereals—wheat or barley
alfalfa, and they use the by-products

Mr. ANDERSON. They have a permit

Mr. JARDINE. Yes, sir.

Mr. ANDERSON. How do they get it

Mr. JARDINE. By homesteading or

The CHAIRMAN. How can it be purchased

on the Government?

Mr. GRAVES. They buy it from individuals

is based upon the law?

Is the law itself.

Can you refer us to that law?

For instance, Congress provided a place at which it occupies it must receive that amount. That Congress fixes the compensation of Members of Congress. No one has any authority to pay them a smaller amount than is fixed by law.

But I, in that connection, point out in this speech how it works out? This man, Dr. Pennington's salary of \$2,520 when Dr. Pennington was in charge of the work when she resigned and that was advanced to the salary of \$2,760. He is in that place, that if he does good work he may under existing conditions look forward to the salary he deserves it from time to time, to, at least that salary, and possibly, if he turns out better than that salary limit which is fixed by you gentlemen is a tremendous spur and stimulus to that particular man. If the salary is fixed, if it is \$2,760 on a permanent basis at the end of his future in the department unchanged and a new statutory position created at that point. That is the way the psychology of it works out.

I thought I would like to illustrate in this way exactly how not having a statutory position would point a young man at a lower salary very fre-

quently. How many on the statutory roll are overpaid? That is the fault with the statutory roll. You say you are not overpaying them the full amount.

The scientific staff is not on the statutory roll. Only clerical laborers, etc., are on that roll. I do not think that the positions are overpaid, on account of the general cost of living. I do believe that four or five of the positions on the statutory roll, which in our department are clerical positions, were in a considerable number of instances overpaid. I mean to say that five or six years ago we had many instances more than the market rate for clerical clerks. Those are the only kinds of statutory positions in the bureau except my own and that of inspectors. At the present time, with readjustment of salaries, I think anybody is being overpaid on the statutory roll. I believe that throughout the Government service five or six of the minor positions on the statutory rolls, which are of the clerical type, and those are the only statutory places we have a considerable number of instances overpaid. Miss Pennington's position is on the statutory roll. I am using it as an illustration. If I were on the statutory roll I would have had to fill it at that salary. I give this illustration to show what would happen. You are saving \$1,000 a year on the salary of the woman doing her work?

If she makes good, he will ultimately get to her salary. If she does not make good, we have saved money.

be, in my opinion, a very reasonable charge compared with what others pay.

Mr. GRAVES. I question whether it would be a desirable thing from the standpoint of a large number of small settlers who constitute the greatest number of our permittees.

The CHAIRMAN. We might exempt the settlers if we are going to run a charitable institution; but I am not so sure that the forests should be made into a charitable institution.

Mr. GRAVES. There are, of course, a great many things which are now being done along that line in the matter of the free use of the timber, free use of the grazing privileges for a certain number of stock, and so on. I think it has always been the attitude of Congress to give special assistance to settlers.

The CHAIRMAN. But the settlers are few; I take it, the permits granted to settlers are very small in number as compared with the permits of stockmen and speculators?

Mr. GRAVES. The number of permits given to the small men who are local settlers is very large. I have not at hand what that proportion is, but it can be inserted. It is a very large proportion.

The CHAIRMAN. Does not that table show it?

Mr. McLAUGHLIN of Michigan. The aggregate of acreage let to these small owners is small compared to the total acreage you let to all others?

Mr. GRAVES. No, sir. A large proportion of the permittees are small owners.

Mr. McLAUGHLIN of Michigan. That is, as to the number of permits?

Mr. GRAVES. And the number of head of cattle.

The CHAIRMAN. What is the average herd of the settler?

Mr. GRAVES. Do you recall that, Mr. Jardine?

Mr. JARDINE. It varies. The average cattle permit for the total of 2,500,000 head was 68 head the last fiscal year.

The CHAIRMAN. The average?

Mr. JARDINE. The average for all permits. In local communities—for instance, in a number of forests in Utah—the protective limit is less than 25 head. The average permit for cattle on the Manti National Forest is, as I understand it, something under 15 head.

The CHAIRMAN. What do the settlers do aside from cattle business—cultivate the lands and grow crops?

Mr. JARDINE. They cultivate the land, and in many cases this few head of stock constitute their cash crop.

Mr. ANDERSON. Do you mean homesteaders when you say settlers?

Mr. JARDINE. Ordinarily, no. A good many of them have lands which produce some feed, part of it irrigated; a part of it is used for growing cereals—wheat or barley or oats—and probably a little alfalfa, and they use the by-products.

Mr. ANDERSON. They have a permanent title to the lands?

Mr. JARDINE. Yes, sir.

Mr. ANDERSON. How do they get it; by homesteading?

Mr. JARDINE. By homesteading originally or by purchase.

The CHAIRMAN. How can it be purchased; from those who buy it from the Government?

Mr. GRAVES. They buy it from individuals.

The CHAIRMAN. How did those individuals get it?

Mr. JARDINE. They originally homesteaded.

The CHAIRMAN. Under the 640-acre law?

Mr. JARDINE. No, sir.

The CHAIRMAN. The 160?

Mr. JARDINE. Some 320; ordinarily 160.

The CHAIRMAN. To what extent are the lands cultivated by the settlers?

Mr. JARDINE. A majority of them have a considerable acreage cultivated. In some cases only small areas are cultivated.

The CHAIRMAN. Generally speaking?

Mr. JARDINE. Generally speaking, the lands that are used as a basis for stock-grazing permits are cultivated extensively.

The CHAIRMAN. Do they grow wheat and oats, or is it just a gardening proposition?

Mr. JARDINE. They grow wheat, oats, and hay in some sections.

The CHAIRMAN. To what extent on the 160 acres?

Mr. JARDINE. In many cases on the entire 160 acres.

The CHAIRMAN. They would not cultivate 160 acres for the family's consumption?

Mr. JARDINE. No; but where we now have very small ownership of stock the average land holding is, I should say, 40 acres or less.

Mr. TINCER. Here is the point I am trying to get at: In 1919 the Government grazed for private owners 2,233,932 horses and cattle. Any individual who had cattle grazed in 1919 by anyone but the Government paid an advance of at least \$5 over 1914. I want to make this suggestion, that an increase of \$2 a head on those cattle for 1919 by the Government would have increased your income over \$4,000,000. Why should we present that to any class of people? Other people are paying for it; the men who are paying \$5 a head increase for their cattle at other places are helping to pay taxes to maintain this appropriation. Why should this money practically be given to the people who graze these cattle?

Mr. JARDINE. There is just one point I would like to make clear in this: If there is an increase of \$5 a head, you must keep in mind the season. Much of the grazing on the national forests is for a short season—100 days.

The CHAIRMAN. But you charge in proportion to the operating days—one-tenth for each month? How much are cattle on that basis?

Mr. JARDINE. For cattle, \$1.50 a head, for year-long grazing.

The CHAIRMAN. That would make it one-tenth of \$1.50?

Mr. JARDINE. Yes, sir; or one-ninth per month for periods less than 4 months.

Mr. TINCER. The matter I was talking about was on a basis of increase of \$5 to \$9, based on seven months' pasture season.

Mr. JARDINE. Yes, sir.

Mr. TINCER. That is where a great proportion of the meat of this country is produced. They have paid that increase for taxes.

The CHAIRMAN. Thank you, Mr. Jardine. Will you proceed, Col. Graves?

**STATEMENT OF MR. HENRY S. GRAVES, FORESTER AND CHIEF
OF THE FOREST SERVICE, DEPARTMENT OF AGRICULTURE—
Continued.**

Mr. GRAVES. Should you not also consider in connection with this whole problem the fact that there are about 200,000,000 acres of open public range lands in the West which are still being grazed absolutely free?

Mr. McLAUGHLIN of Michigan. Are those lands under the charge of the Interior Department?

Mr. GRAVES. Yes, sir.

The CHAIRMAN. That is a matter of policy?

Mr. GRAVES. That is what I meant. It was a matter of wise public policy to regulate the grazing on the national forests. In considering the charges for the privileges and their industrial effect, we have also to consider the very large area which has not yet been placed under any administration at all.

The CHAIRMAN. No fault is found at what is being done; it is just a question of policy.

Mr. GRAVES. Yes.

The CHAIRMAN. If the committee should decide upon a different policy that would be a different thing.

Mr. GRAVES. Yes; I should think in connection with that that it would be well to bear in mind the situation regarding the small men and I can place in your hands the exact data about that so you can have that before you in considering the matter.

The CHAIRMAN. That is what the committee would like. The committee will then discuss the policy.

Mr. McLAUGHLIN of Michigan. There is one thing confronting us; that is, you practically make it impossible for us to increase these rates now, in that the Secretary of Agriculture at a meeting of the stockmen assured them that there would be no increase of rates during the next five years.

Mr. GRAVES. That was a statement of policy, that we did not contemplate making a change. It would not embarrass the Congress in any way in laying down any different policy.

The CHAIRMAN. As I understand, there was no explicit agreement?

Mr. GRAVES. It is a statement of policy, made also to our permittees.

Mr. McLAUGHLIN of Michigan. How was it given? Did I misunderstand you? Was the Secretary attending a meeting of stockmen interested in this grazing and gave them that assurance?

Mr. GRAVES. I do not recall the particular circumstance of the live-stock meeting. The Secretary made public a statement of our general policy of five-year readjustments, designed to settle this grazing question, the question of the fees, which has been a matter of very great controversy.

Mr. McLAUGHLIN of Michigan. When was that statement issued; by whom, to whom, and under what circumstances?

Mr. GRAVES. I will have to look that up.

The CHAIRMAN. Was that for the duration of the war or does it establish a policy?

Mr. GRAVES. That was in the line of settling the whole disputed question of the fees, with the idea of having a readjustment period-

ically rather than to have an increase every year or every two years. Based on the conditions prevailing when the present basis of charge was determined upon, the fee is, in my opinion, right. The war has caused new conditions that may require further readjustment. I think it would be a very appropriate thing for the committee to examine the present policy and determine whether it wishes to approve that or would wish to have the full commercial value of the privileges determined, perhaps, every year or so, to respond to such increases of private values as have occurred in the past two years.

Mr. McLAUGHLIN of Michigan. In considering whether or not the policy should be changed, it would be interesting for us to know what assurances, if we can call them assurances, or promises, were given by the Secretary of Agriculture in regard to the rates, and how long they should continue at the present level.

Mr. GRAVES. I do not think there were any assurances of any such formality that would be in any way embarrassing to this committee. I will include the Secretary's letter in the record at this point.

(The letter referred to follows:)

WASHINGTON, D. C., November 23, 1918.

Mr. T. W. TOMLINSON,

Secretary American National Live Stock Association, Denver, Colo.

DEAR SIR: Careful consideration has been given to the question of the rates which will be charged for grazing upon the national forests during the coming season, including further information which has been gained regarding the relative values of grazing in different localities and the statements which have been presented by representative stockmen. In accordance with the conclusion announced by me on February 1, 1917, that the charge for grazing should be based upon the real value of the forage, I have decided that beginning March 1, 1919, the charge for grazing upon the national forests during the year-long period will be from 80 cents to \$1.50 per head for cattle, varying with the advantages of the different ranges. The rate for sheep and goats on each forest will be 25 per cent of the rate for cattle. The rate for horses will be 25 per cent more than for cattle, and the rate for swine 25 per cent less. The proportionate charge for grazing during only a part of each year will be in accordance with the provisions of the national forest regulations.

You are aware of the fact that I suspended action in this matter last year on account of the greatly disturbed conditions and the unusual problems which confronted the stockmen at that time. I am not unmindful of the difficulties which still exist, but under the circumstances it seems unwise to further defer action on this important problem.

From time to time the stockmen have urged that as a means of stabilizing the live-stock industry grazing permits be issued for periods of 5 or 10 years not subject to reduction except for violation of their terms or to stop damage to the forest or range. On several of the forests applications have already been approved for permits during a five-year period subject to an annual reduction of five per cent to provide for the issuance of permits to new settlers, in addition to such reduction as might be necessary to prevent damage to the forest.

It appears that while the stockmen are ready to subject themselves to whatever restrictions are necessary for the welfare of the forest from the standpoint of timber production or other primary purposes for which the land was set aside, yet the possibility of the five per cent annual reduction proves an embarrassment to them. It is appreciated that the assurance of continued use of the range for a specific number of animals during a term of years would undoubtedly tend to greater stability of the industry and encourage the handling of business in a way to increase the quantity and improve the quality of the live stock and would also enable a better administration of the range itself.

On a considerable portion of the national forests we have reached the point where permits for a period of five years can be put into effect without difficulty. On certain other forests we are not in a position to grant five-year permits for more than a portion of the stock at present upon them, because there is serious question whether there is not now more stock than can be carried permanently without injury to the forest. There is also the extra stock which has been

taken care of as a war emergency some of which we will not be able to continue, and for that reason should not be included under five-year permits.

Therefore, I am authorizing the forester to issue five-year grazing permits beginning with the season of 1919 where the conditions warrant such action and it is desired by the permittees. The issuance of annual permits will be continued where reductions are necessary to insure against overstocking or where this may be required for any other reason. The plan is progressively to bring about a more secure tenure of the grazing privileges through the issuance of five-year permits as fast as this can be done in consideration of the various public interests involved.

Very truly, yours,

D. F. HOUSTON, *Secretary*.

Mr. GRAVES. The Secretary's letter deals with grazing fees only in its first two paragraphs. The four following paragraphs deal with the extension of the policy of five-year permits. This letter makes no promise regarding the possible change of fees. The Forest Service has, however, indicated to the stockmen that the policy would be to recommend material changes in the grazing fees only at five-year periods and has based its five-year permits on that policy. Unless such a policy is adopted the five-year permit would be little more valuable than an annual permit, since it would be subject to radical increase in charges at any time, which charges might entirely upset the stockman's plans. At the time the present fees were fixed by the Secretary of Agriculture the rates fairly represented the value of the grazing privileges as compared with charges received for use of private land. However, since then prices have advanced exorbitantly. A number of our most important national forest States have been seriously stricken by drouth. The stockmen would be compelled to pay most anything we want to ask and would do so in preference to sacrificing their immature stock. The Forest Service has not felt inclined to take advantage of this situation. However, should such high rates become established as normal rather than abnormal, the Forest Service would feel justified in accepting them as such and in making the proper relative advance in grazing fees at the next readjustment.

The CHAIRMAN. Of course, nobody wants to repudiate a contract. If a contract was made, that should stand. But, as you recall, when we started on this forest proposition, it was generally understood and the people were led to believe, that it would be made self-sustaining within a very short time.

There is a shortage of probably \$3,000,000. It may be necessary to change the policy in order to bring about the results desired and anticipated at the time we embarked upon this proposition. This seems to be about the only way at the present time to accomplish what was promised to the people at that time.

Mr. GRAVES. Of course, there are a great many privileges in the national forest which are quite free, especially to settlers, for which we do not make any charges.

I think it is very appropriate for the committee at the present time to consider also the whole question of grazing on the open public domain, much of which is adjacent to the national forests. There are some 200,000,000 acres of open public domain which is not under any regulation, upon which stock is grazed without any control, and on a very large part of which there has been so much overgrazing that the carrying capacity for stock has been reduced to fully one-half of the normal. In many places the overgrazing has al-

ready resulted in erosion, which is seriously jeopardizing the stability of the water resources. The proposal to put these lands under some sort of administration and control, similar to that which is exercised in grazing in the national forest, has been made repeatedly for the last 10 or 12 years. There have been bills in Congress in regard to it, and I believe there is enough public sentiment in the West to-day to support some sort of governmental regulation of these lands, with the provision, of course, always for the proper classification and opening up of lands suited to homesteading and other home developments.

Mr. JACOWAY. How long has this policy been in force in the national forests?

Mr. GRAVES. Since 1905; but the public domain has never been placed under administration.

Mr. ANDERSON. I understand there was a practical agreement for leasing legislation last year. I do not remember what became of it, but I know that some gentlemen who were very much interested in it undertook to secure some sort of arrangement with the Public Lands Committee for reporting out that sort of legislation, but nothing apparently ever came of it.

Mr. RUBEY. It seems to me we have had some bills pending in relation to that very subject.

Mr. ANDERSON. I am sure of it.

Mr. McLAUGHLIN of Michigan. Does the Interior Department object to it?

Mr. GRAVES. I do not know that they do now.

Mr. RUBEY. Is it not a fact that objections come from western men who use and have had the benefit of these ranges free for all these years? Are not they the fellows who object?

The CHAIRMAN. Where are these lands located?

Mr. GRAVES. There are a great many of them in the Southwest, Arizona and in New Mexico, and practically all the other Western States. There are some in eastern Oregon and Washington—

Mr. JARDINE. Yes; the largest areas are in Nevada, Arizona, and New Mexico. There are areas in California and Oregon, a small area in Washington, a considerable area in Idaho, and in Wyoming, Colorado, Montana, and Utah.

Mr. McLAUGHLIN of Michigan. Generally speaking, would they compare favorably with your grazing lands for grazing purposes?

Mr. JARDINE. Generally speaking, in grazing capacity they would compare favorably. The problem of the administration is considerably different. They are more plains lands. Many of them are without water. That is one of the difficulties to-day. They are not under administration, and no one is putting in the expensive water development necessary to properly open them up and use them. It is generally estimated that they are not producing over 50 per cent of what they might produce. It would cost considerable to put them in proper shape, but nothing to compare with their value, either for rental or livestock production.

Mr. McLAUGHLIN of Michigan. Are they large tracts?

Mr. JARDINE. Yes, sir; generally they are.

Mr. McLAUGHLIN of Michigan. And they compare favorably with yours?

Mr. JARDINE. In grazing capacity. However, they are suitable mainly for spring, fall, and winter range, while the national forests are primarily summer range.

Mr. McLAUGHLIN of Michigan. Are they in proximity to yours?

Mr. JARDINE. The areas adjoining parts of the national forest areas are becoming less and less. Homesteading is crowding back to the foothills, so that in many cases there is a narrow strip of public domain between the forest and the lower lands. In other cases there are millions of acres that are practically desert at a considerable distance from the forests.

The CHAIRMAN. As a matter of economy, they should be brought under your jurisdiction, should they not? They could be handled by you with a great deal less expense than they could under another department?

Mr. GRAVES. Yes; because the Department of Agriculture has all the trained men that there are in the Government service, skilled in grazing.

The CHAIRMAN. At least, it ought to be in cooperation with the other departments?

Mr. GRAVES. I should think that it ought to be under the Agricultural Department.

The CHAIRMAN. That would be more economical?

Mr. GRAVES. Not only as far as service is concerned, but because that is the logical thing.

Mr. TINCHER. We still maintain Government land offices in these sections where they have these lands; for instance, in Colorado and the other places you named. The only question would be whether they could rent those lands through those land offices with less administrative expense to the Government than through your office.

Mr. GRAVES. Yes, sir.

Mr. TINCHER. At any rate, it should be one or the other. They ought to be leased by one of the departments.

Mr. GRAVES. Yes; I think the matter of working out administrative machinery in handling them is the easiest question.

Mr. TINCHER. One member of the committee suggests that the little fellow out there was using these Government lands. That was not my understanding. Who are using the Government lands?

Mr. GRAVES. You mean the national forest lands?

Mr. TINCHER. No; the other.

Mr. JACOWAY. He means the national forest lands.

Mr. GRAVES. You are referring to the open public lands?

Mr. JARDINE. They are more the large men when we consider the area as a whole. However, there are some places where settlers use the adjoining public lands for grazing their stock. It depends upon the stage of settlement and cost of development. Many of these lands can not be used by other than a large organization. Either the Government would have to develop them and have them handled as large units by cooperative associations or groups of little fellows, or it would take a large private operator to develop and manage them.

Mr. JACOWAY. Didn't you state a while ago that thousands of little fellows, the settlers, would get the advantage under this policy of the Government?

Mr. GRAVES. That is in the national forest.

Mr. TINCHER. No; I mean the other. Tell me what the situation is. Let us say that a big company owns a pasture and in that pasture are several tracts of Government lands. The effect of giving them the use of that Government land is to discourage the system of putting that land off the tax rolls.

Mr. JARDINE. It is illegal to fence the Government land without permit.

Mr. TINCHER. But they have their fences and roads.

The CHAIRMAN. What are the laws in the States with respect to fencing? Are cattle permitted to run at large?

Mr. JARDINE. Ordinarily there are fencing laws in the Western States which require fencing of individual holdings.

Mr. McLAUGHLIN of Michigan. Mr. Jardine spoke about placing large sums of money for developing water purposes. Are you using some of that money for that purpose?

Mr. GRAVES. We are making water improvements at various places.

Mr. McLAUGHLIN of Michigan. Where you have large areas available for grazing, there is always water available somewhere in the vicinity. Do you do anything there with the water supply?

Mr. GRAVES. There are places where we are making some experiments to open up lands that have not been used at all. There is one such place in California.

Mr. McLAUGHLIN of Michigan. On those areas there must be some water.

Mr. GRAVES. Yes, sir.

Mr. McLAUGHLIN of Michigan. And that supply is under your care?

Mr. GRAVES. Usually.

Mr. McLAUGHLIN of Michigan. Where it is, are you spending money to protect that water supply or improve it and develop it; I mean so as to increase the supply of it to cattle or sheep or goats?

Mr. GRAVES. There are places where there is public water used by quite a number of different permittees.

Mr. JARDINE. In the national forests a great deal of improvement work is done in cooperation with permittees.

Mr. McLAUGHLIN of Michigan. Have you any idea of how much money you are spending for each one of the items?

Mr. GRAVES. This money is derived from the general improvement fund. That comes under another item and will be presented later.

The CHAIRMAN. We will take up the next item, Mr. Graves, No. 246, on page 133:

For the purchase of tree seed, cones, and nursery stock, for seeding and tree planting within national forests.

Mr. GRAVES. There is no change in that.

Mr. ANDERSON. We have been thinking about reducing that a little.

Mr. GRAVES. That was reduced several years ago.

The CHAIRMAN. What is being done with that money?

Mr. GRAVES. That is the item for planting on the national forests. In a number of forests we conduct nurseries, furnishing stock for planting on the more important areas, like watersheds. We are

planting also on lands which have been severely burned over and on which we feel that we are secure from fire.

The CHAIRMAN. Do you plant trees?

Mr. GRAVES. Yes, sir.

The CHAIRMAN. And raise the nursery stock?

Mr. GRAVES. We raise nursery stock. We collect and grade the seed and raise the small trees and set them out in the forest.

The CHAIRMAN. Is that experimental work?

Mr. GRAVES. It is partly experimental. Much of it is beyond the experimental stage. We plant forests in places where we can not expect to get natural production. We plant about 7,000 acres a year now. The work is of increasing importance.

The CHAIRMAN. By planting trees?

Mr. GRAVES. Yes, sir. In Nebraska we are practically creating forests.

Mr. McLAUGHLIN of Nebraska. What particular part of Nebraska?

Mr. GRAVES. In the sandhills of western Nebraska we are planting about a section a year.

Mr. RUBEY. Do you find them the next year when you go back to look for them?

Mr. GRAVES. The plantations have been singularly successful.

The CHAIRMAN. Describe the planting; how is it done?

Mr. GRAVES. They are set out in rows, usually 8 to 10 feet apart. Where there is more or less brush, of course, the rows are very irregular. The trees are put out when they are only about two or three years old, and the planting is done very rapidly. In our plantations, which have passed beyond the purely experimental stage, success is exceedingly good. In the Nebraska forests there were a great many failures during the first few years. There is very little failure now. Perhaps the best success we have had is in Michigan, Montana, Colorado, Oregon, and Washington.

Mr. McLAUGHLIN of Michigan. What is your acreage in Michigan?

Mr. GRAVES. We have about 1,200 to 1,500 acres planted, and we expect in a few years to be planting approximately 1,000 acres a year.

Mr. McLAUGHLIN of Michigan. How much land have you in Michigan that you propose to improve in this way?

Mr. GRAVES. Probably, ultimately, it will be desirable to plant 50,000 to 60,000 acres on that forest, and we are hoping that a great deal of the balance of the Michigan forests will come in with natural reproduction.

The CHAIRMAN. What is the cost of planting per acre?

Mr. GRAVES. The cost of planting forests is all the way from \$3 to \$4 up to \$12 an acre, according to the class, roughness of ground, distance from transportation, and various other items of cost that go into any operation of this kind.

Mr. McLAUGHLIN of Michigan. You grow the trees in the nursery, take them to the place where you are going to plant them, and put them in?

Mr. GRAVES. Yes, sir.

Mr. McLAUGHLIN of Michigan. When you speak of the cost per acre, do you take into account all the cost of raising the trees, care of nursery, transplanting, and getting them into the ground?

Mr. GRAVES. Everything.

Mr. McLAUGHLIN of Michigan. I believe you stated that the average cost in one of the previous years was \$7 a thousand?

Mr. GRAVES. \$7 an acre.

Mr. McLAUGHLIN of Michigan. Seven cents apiece for the trees?

Mr. GRAVES. No. Seven mills apiece. We plant just about a thousand to an acre, or a little less. It would be about the same.

Mr. McLAUGHLIN of Michigan. At what age do you transfer these trees?

Mr. GRAVES. Usually when three years old; that is, three years from the seed. That usually means that they have been transplants for one year.

Mr. McLAUGHLIN of Michigan. Using different forests, I presume, depending on the locality and soil?

Mr. GRAVES. Yes; but with very many varieties, after we have learned the trees which grow the best.

The CHAIRMAN. How much of the \$145,000 is to be used for planting?

Mr. GRAVES. That is all expended for planting and planting experiments. Of course, under planting I include also the maintenance of the nurseries.

The CHAIRMAN. How much is for the nurseries and how much for the planting?

Mr. GRAVES. I can not give that offhand without consulting the book. Would you like that inserted?

The CHAIRMAN. Yes, if you please.

(The statement referred to follows:)

Allotment of funds under the item for tree planting on the national forests.

Planting investigations and general supervision.....	\$23,002
Forest nurseries.....	42,922
Planting work.....	73,946
Seed collection and extraction.....	5,680

Total..... 145,640

The CHAIRMAN. We will recess now until 2 o'clock this afternoon.

(Thereupon, at 12.30 o'clock p. m., the committee took a recess until 2 o'clock p. m.)

AFTER RECESS.

FOREST SERVICE—Continued.

The committee reassembled at 2 o'clock p. m., pursuant to the taking of recess, Hon. Gilbert N. Haugen (chairman) presiding,

The CHAIRMAN. You may proceed, Col. Graves.

STATEMENT OF MR. HENRY S. GRAVES, FORESTER AND CHIEF OF THE FOREST SERVICE, DEPARTMENT OF AGRICULTURE—Continued.

Mr. GRAVES. On page 134, item 247, "for silvicultural, dendrological, and other experiments and investigations," etc., an increase of \$75,000 is requested. This increase may be divided into three general heads, each of \$25,000.

The first has to do with the problem of the present depletion of the forests, which is going on so rapidly, and the need for further information in regard to the situation as it really exists in this country.

The two most acute situations in the country are, first, the supply of pulpwood suitable for the manufacture of news-print paper. The other is the depletion of our hardwoods, particularly the high-grade hardwoods such as are used extensively by the general wood-using industries—those which manufacture vehicles, furniture, agricultural implements, and a great variety of articles made of oak, hickory, ash, poplar, and walnut. The old-growth timber in the East is going very fast. We have been accustomed to draw for most of our uses on the virgin forests; that is, on trees which are 150 years and over in age. That is high-grade material, and it comes chiefly from our original supplies. The old-growth soft woods have been pretty much cut out in the East, with the exception of relatively small areas in some of the Northern States and in the far South. The old-growth yellow pine has not a very much longer life. I do not mean that all of the old-growth trees are going to be cut in the near future, but the larger bodies which go to make up quantity production are not going to last more than about 15 years. That is on the testimony of the lumber manufacturers themselves.

The significance of this is that the yellow pine, which heretofore has been the controlling influence in the general market for soft timber, is giving way very rapidly to the Douglas fir, so that the prices of lumber are more and more governed, even in the East, by the prices of Douglas fir.

Douglas fir is even being sold to-day in Portland, Me., and I was told the other day that in New York State common 2 x 4's of Douglas fir were being sold, with a \$26 freight rate.

The hardwood situation is a critical one for many of our manufacturing industries, which do not know what they can look forward to in the way of supplies. They are coming to us for information, but our information is meager. It will be, of course, impossible to make a complete inventory or survey of the forest resources of the country for anything like the sum asked, but it is desirable to assemble information as fast as possible regarding the situation to meet the demands that are coming and to aid in working out the general broad policy for bringing about better forest practices throughout the country. That is the purpose of the first portion of this increase of \$25,000.

Mr. ANDERSON. Mr. Graves, I noticed in reading the explanatory note under this item that the first increase apparently contemplates quite a wide investigation connected with the manufacture of lumber and other wood products, requirements, outputs, domestic and export markets, etc. It is quite clear, I think, that the amount of money that you have here is not going to permit of any such investigation. I do not feel that I would be willing to vote for an item of this sort unless it was understood that it was to be confined to the critical points of this proposition, the hardwood or pulpwood particularly. There is no use of spreading this money out over a wide field because you are not going to get anywhere, it seems to me.

Mr. GRAVES. I think there is a good deal that can be assembled through existing agencies—through lumber associations, State agencies, and others—which would not cost very much. I think you are right in regard to any effort to spread so thin that you would not get anywhere. I would not undertake that. To make a real survey of the whole United States, such as was suggested when the census bill was before the House committee, would cost several million dollars, because that would mean that, State by State, the resources would be surveyed and all of the related problems taken into consideration.

Mr. ANDERSON. Do you have any hope of discovering new sources of pulpwood, or is it rather a question of cultivation or establishment of new pulp forests?

Mr. GRAVES. So far as the pulpwood problem is concerned, I feel that we should have assembled the information in regard to the situation as it actually exists to-day in the East, and in the Lake States, too, where the principal source of manufacture has been. As to new sources of pulp supply, that is largely a question of investigation in the far West. We have in the national forests and in the private forests near them the future supply of pulpwood. That includes southeast Alaska and possibly, ultimately, if the forests do not all burn up, some production from the interior of Alaska, where there is a great deal of good spruce. A great deal can be done through cooperation with existing agencies. The State agencies in New York and Maine, New Hampshire, West Virginia, Minnesota, Michigan, and a number of other States, are gathering information, and our part in that would be to act as a clearing house and bring this information together for the whole country, check it up, and fill in gaps.

Mr. ANDERSON. My impression is that some of these timber concerns are very large, and some of them may maintain quite large investigational or research forces, and that they have very considerable statistical material with respect to the extent of forest resources.

Mr. GRAVES. That is true. In the case of the western forests a good deal of that information is already in our hands. In the East such organizations as the International Paper Co. have, as you say, a research organization and probably have a good deal of information not only about their own lands, but also regarding possible supplies elsewhere upon which they may intend to draw.

Mr. ANDERSON. Do you expect this material to be made available to you, in considerable measure at least, and that you will collate and correlate that information?

Mr. GRAVES. We will serve as a clearing house for that information. In some other places, as with hardwoods, that would not be the case. At the present time the Indiana hardwood manufacturers and wood using industries are extending out for their supplies into Mississippi, Louisiana, and Arkansas, and they are probably less equipped with information than any other class of manufacturers.

Mr. ANDERSON. Is any thing being done now in the way of the importation of hardwoods?

Mr. GRAVES. There is very little hardwood imported except such species as do not grow in this country, used for furniture and other

special uses. At one time there was some oak imported and used for railroad ties, which was brought over from Korea, I think it was, through the Japanese, but that was more of a trial shipment, I think, than anything else.

Our country is going to be drawn on for hardwoods by western Europe when they get into a condition to purchase lumber. Already some of our higher grade hardwoods are being shipped abroad. Western Europe is going to look to Russia, Finland, and Scandinavia for their supplies of ordinary soft wood. For hardwoods they will look to us. So we can look for a drain on our hardwood supply from Europe just as fast as they can finance it.

The CHAIRMAN. In what respect does this line of activity differ from that carried on at the Madison laboratory? The note states, "To investigate the many economic problems connected with the manufacture of lumber," etc.

Mr. GRAVES. It is a question of the economic aspects rather than the technical aspects.

The CHAIRMAN. Do you have a laboratory here in Washington?

Mr. GRAVES. No; the laboratory at Madison is the only one.

The CHAIRMAN. What about the next item?

Mr. GRAVES. The second portion refers to the forest investigations and the studies which we are making in the growth of the different trees, the possible yield per acre under different methods of cutting, the methods of cutting so as to secure natural reproduction, and similar questions. Forestry is still in its infancy in this country. We have a number of experimental stations in the national forests where we are making the studies, but there is a good deal of additional information urgently needed about the growth, reproduction, and methods of treating forests as applied to the Government lands. There is also great demand for investigations outside the public property. Take, for example, the problem of southern pine. The old timber is going very rapidly. The question which is immediately asked when we urge the conserving of the young trees and the use of methods that will encourage reproduction is, How fast will the trees grow? Will it pay us to hold this land if we have some young trees on it; and if so, how can we cut our timber in a practical way so that we can encourage the young growth and make it worth while to protect it from fire afterwards?

It is that class of studies which are included in this item.

We are endeavoring also, in connection with hardwoods, to perfect our technical information in order effectively to encourage small owners of woodlands, farmers, and others to plant hardwood trees such as walnut, ash, hickory, oak, and trees of that kind, which have a large value, and to handle their woodlands intelligently.

A part of this proposed increase would be used in connection with our own experimental stations in the national forest and a part of it in connection with the studies in the East, outside the national forests.

The CHAIRMAN. How many of these experimental stations have you?

Mr. GRAVES. We have six stations. They consist of a headquarters building or two at a point selected to show typical conditions in some region. For example, we have one just north of the Columbia River, in the State of Washington, which is in the heart of the

Douglas-fir region; and already, as a result of the studies there, we have definitely determined how the Douglas-fir stands should be cut in order to get reproduction, information that was not known five or six years ago. We were in the dark or guessing at it, and we were making some mistakes until the experimental work settled the methods.

Mr. ANDERSON. Is there any considerable reforestation being undertaken by private concerns now?

Mr. GRAVES. Very little in the way of actual planting. There are some water companies, mining companies, and wealthy individuals who are undertaking it. In some instances paper companies are beginning systematic reforestation. One of the very large paper companies in Canada is undertaking reforestation on a large scale.

Mr. McLAUGHLIN of Michigan. How large?

Mr. GRAVES. I think it is several thousand acres a year which they expect to plant. They are establishing substantial nurseries. That is the Laurentide Paper Co. They have reached the conclusion that, as a permanent industry, with a very expensive plant and large investments in mills, waterpower development, and so on, it is the best economy to reforest wherever the natural reproduction is not following. They feel that it is going to be more economical in the long run to plant in the more accessible portions of their forests as they are cut over, instead of bringing in timber from long distances, say 25, 35, or 40 years from now.

Mr. McLAUGHLIN of Michigan. That is a more feasible proposition for the paper companies than for some other industries, because paper lumber can be cut when it is quite small.

Mr. GRAVES. Yes; and also because the paper manufacturers, on account of the large investments, must be on a more permanent basis. A sawmill, compared with a paper mill, represents a relatively small investment, and the value can be usually depreciated in a relatively small time. This can not be done with a paper mill, so the question resolves itself into the permanency of ownership. Those who have permanent interests in the lands, like mining companies, would hold the lands because of their mineral value, and they are interested in growing trees on the surface for their own use. That is one of the reasons why mining companies and private water companies are going into forestation. They can possibly charge off some of the expense of holding the land to other uses, and incidentally they raise trees both because they conserve the watershed and because they can in the long run get some income from them. So those are the first enterprises which are chiefly interested.

Mr. McLAUGHLIN of Michigan. Generally speaking, what is the quality of the soil in the South on the southern timberlands from which the timber has been cut? There has been an immense cutting of timber in the South in the last few years. What is the quality of the soil that is left, generally speaking?

Mr. GRAVES. There is a great deal of that soil which is suitable for agriculture, and there is a great deal of it which is very meager. Just as soon as the top soil is leached out it is unproductive and is never going to be permanently cultivated. People may try it, but in the long run a great deal of it is land that is going to be chiefly valuable for trees and will ultimately revert to trees.

Mr. McLAUGHLIN of Michigan. In the southern climate trees grow more rapidly, and it would seem to me a good field for reforestation.

Mr. GRAVES. There are certain pines that grow very rapidly. There is Loblolly pine, often called North Carolina pine, that grows as rapidly as the western Douglas fir. In the far South, in certain locations the longleaf pine and also the slash pine grow very rapidly. There is an excellent opportunity for forestry enterprises with that very rapid growing slash pine or longleaf pine, which can be used for turpentine when it is 23 or 24 years old, and, if the right kind of methods are used, a continuous production can be taken from it for 25 or 30 years without weakening the tree, as is done in France.

Mr. McLAUGHLIN of Michigan. It seems to me that in our Southern States where so much timber is being cut, especially from land which is not very good for agriculture, reforestation ought to be encouraged.

Mr. GRAVES. The next part of this item is the proposal that I have for that, sir. That is the third part of this increase and is primarily for cooperation. We have one man now in the South. He is a thoroughly practical fellow. He has been well trained in forestry and has also had very long experience in lumbering. He is working with the different owners, studying with them the possibilities of forestry, investigating their economic problems, and pointing out to them the possibilities for the practical handling of their lands for growing trees. There are many places in the South where, even from the standpoint of the ordinary investor to-day, it will pay to hold lands covered with second growth and to encourage a regrowth on those areas which is not covered to-day.

Mr. McLAUGHLIN of Michigan. But, largely and as a general proposition, individuals will not go into that reforestation. It takes too long. An individual buys, for instance, in the southern countries for the timber; and he manufactures it and gets out just as soon as the timber is gone. He does not buy with the idea that the land was very valuable, and he sells the land for anything he can get. It is practically so with the company that was organized to operate on that land. When the timber is gone the company goes out of existence and they quit, and for the reason you have stated, that it takes a long time for the trees to grow, and the individual will not undertake to go into that proposition on a large scale.

Mr. JONES. He can not afford to pay the taxes on the land while the trees are growing.

Mr. McLAUGHLIN of Michigan. You might encourage some of them to take it up, but my impression is that you will not get very far. It would seem to me, therefore, that the public in those States ought to do it; they might be encouraged by your bureau to do it.

Mr. GRAVES. I feel that there is a public aspect to it, but I do not feel that it is either practical, necessary, or desirable that the public should undertake the whole problem. I think a great deal can be accomplished through systematic fire protection and right methods of cutting.

Mr. McLAUGHLIN of Michigan. Fire protection is only for the protection of the timber until the time comes for cutting it.

Mr. GRAVES. I feel that there should be fire protection of the young trees as well; and that would be practical under such systems as we are already inaugurating in a number of States. The States

themselves must participate in the fire-protective work. We are going to stop the destruction by fire and other causes. There will follow an immense amount of young growth which will come on and furnish growth for the future.

I believe that with the cooperative enterprise, the recognition of the practical consideration of taxation, and other things, we can in the long run bring about an immense amount of forest renewal. The educational work or cooperative work we do would not be merely to persuade some lumber operator, who has bought some land and expects to go out in 15 years, to develop forestry. We would not expect that. We have got to begin at the beginning. The result of this work will be the development of general interest in this whole problem and bring about State legislation to prevent fires and secure constructive practices of forestry which, taken all together, will go a long way toward solving the problem.

Mr. JONES. How many States are purchasing land and reforesting it?

Mr. GRAVES. I think there are probably 15 or 16.

Mr. JONES. About how many States in the Union have a condition where they ought to do that?

Mr. GRAVES. Practically every State that has natural forest conditions. I believe that even Ohio ought to acquire some forests in the southern part of the State, a rough country where the forests are rapidly deteriorating every year. These would constitute a center of cooperation and as demonstration grounds, places from which the public could work with private owners and perhaps make a tremendous step in advance throughout the region.

Mr. JONES. What objection have these States made, if you have had any correspondence or conference with them on it, as to why they do not start propaganda of that kind?

Mr. GRAVES. It has usually been inertia. The public does not realize the importance of it. They look on it somewhat as a private individual does—that it takes a long time to grow trees and that, if they do not do it this year, the consequence will not be serious; so they let it go and nothing happens.

Mr. JONES. Do you think that the Federal Government should force them to act?

Mr. GRAVES. The Federal Government can not force them to act. I think the Federal Government could act as a stimulus, a clearing house of information, and guide; and it could, through such measures perhaps as our cooperative fire protection, stimulate action by the States by making cooperative contributions from the Government contingent on wise and effective action by the States.

Mr. McLAUGHLIN of Michigan. It occurs to me that in the South, where they are cutting timber so fast, some of the land may be good for practical agriculture and that some of it which may be taken up for agriculture may not be suitable for that purpose, at least in a profitable way. It seems to me it would be well if those States would profit by the experience of other States and acquire some of that poorer land that is good for forestry and use it for reforesting and not permit it to be put to agricultural use, because it will be an ultimate failure if they attempt to use it for agricultural purposes.

Mr. GRAVES. I know the Federal Government by its studies and cooperation does wish to point that out.

Mr. McLAUGHLIN of Michigan. Yes; but not to do the work in connection with it, because it is of such importance and interest to the State itself that it seems to me they ought to do it. Years ago in Michigan there were great pine forests. Private parties acquired the land, and their first cut was only of the very best pine timber, because that was all for which there was a market. Then, after that cutting, they let the land go back to the State for taxes. The State, instead of holding that land (because there was still a lot of good timber on it that later came into the market), provided a way for selling it. It was bought, and the time that elapsed allowed the land to improve; the timber increased in size, and the market for timber changed so that the poor timber found a market. That land was sold by the State, after it had been acquired for taxes, and the new purchaser cleaned off what was good, and then let it go back to the State again for taxes, and we lost all the timber again.

Now, it seems to me that that condition exists in many places in the South, with reference to the lighter land; and if they would profit by the experience of our State, for instance, after the first cutting, when they have a chance to get the land through the lapse of taxes, they ought to hold it and have forest reservations there.

The CHAIRMAN. In your opinion, is the supply increasing or decreasing?

Mr. GRAVES. The supply of timber is being depleted very rapidly, and the supply of merchantable timber, taking it as a whole in the United States, is losing ground every year.

The CHAIRMAN. To what extent?

Mr. GRAVES. I think that the growth is probably less than one-third of the use and loss, measured in terms of merchantable timber. I am speaking of growth which will produce trees of a quality and character that ultimately could be sawed, and not of mere cubic feet of wood. The difficulty is that our second growth, which comes up naturally under fire and abuse, is of such a low grade that there are great areas of the country covered with second growth of little potential value. It is low grade in character, and crooked, and never will make anything of value.

The CHAIRMAN. Take the next item, 248, "For estimating and appraising timber and other resources on the national forests," etc., an increase of \$45,000.

Mr. GRAVES. This increase is in part for appraisals of timber for sales which are coming on. About \$20,000 of the increase will be used for that purpose. The item was formerly \$100,000, and was reduced to \$80,000 during the war because the demand for new sales of timber fell off so rapidly that we did not need the money. The demand for timber is increasing again and we have already a good many different tracts of land which have got to be examined, cruised, and appraised before sales can be made. Southeast Alaska presents one of the most interesting fields for new development and the establishment of paper plants. There are there splendid opportunities for water-power development. The spruce and hemlock grow there in great abundance, in heavy stands, and accessible to water. There is offered one of the best opportunities in the country for large development. We have now very little information of sufficiently exact character to make sales now, and that would be one of the places where we would make important timber surveys.

The CHAIRMAN. It is in order to keep up with the increased business?

Mr. GRAVES. Yes, sir. As an illustration of the increased business, already this year our receipts are running about \$160,000 ahead of last year, which shows the activities in the lumber industry.

Mr. McLAUGHLIN of Michigan. In some of these other items you told us you employed a lot of men whose duty it was to do this very estimating and appraising of the timber for sales.

Mr. GRAVES. Yes, sir.

Mr. McLAUGHLIN of Michigan. Can they not do it under the other appropriations without having this money for it?

Mr. GRAVES. No, sir; these surveys are for important sales and the new sales of large bodies of timber. They involve special crews.

Mr. McLAUGHLIN of Michigan. Every sale is important, is it not?

Mr. GRAVES. I should not have used that word in that connection. There is an immense number of small sales, whose appraisal is handled by our local officers, who have miscellaneous other duties also. The item in question provides for appraising timber in large sales, where it is necessary to send a regular organized crew to spend the entire season going over and mapping the ground, cruising, and determining the amount and value of timber.

Mr. McLAUGHLIN of Michigan. When you make these sales is the timber cut clean?

Mr. GRAVES. No, sir; usually not; but the timber is always designated for cutting. In cases where the trees can be selected here and there, every tree that is to be taken out is marked. Where is certain stands in the Northwest, such as the heaviest white pine and the Douglas fir the trees are all about the same size and about the same age, it is impossible to make selective cutting. There we cut clear in blocks or patches; otherwise, if you left individual trees standing, they would be blown over. Provision is, of course, made in the location of those areas for leaving blocks of trees which will stand in order to seed up the ground.

In the majority of cases, however, it is not necessary to cut clear, but a portion of the stand is left, amounting from the standpoint of actual quantity of timber, to from 15 to 25 per cent of the merchantable volume, but a larger percentage of the individual trees, because those which are left are small or of the middle size, while the mature and older trees are cut.

Mr. RUBEY. I notice you have a great many employees with different titles. I can usually tell by the title what character of work the employee does. There may be some of colleagues on the committee who may not know what a xylotomist is, and for their information I would like to have you tell us what a xylotomist is. It appears among the list of employees on page 131.

Mr. GRAVES. A xylotomist is a civil service designation which I hope before we get through we can get changed. He must be a trained microscopist, who—

Mr. RUBEY. What is that?

Mr. GRAVES. The man who who holds this position has been studying the structure of wood. He is an expert in cutting slides and examining the structure of wood under the microscope.

Mr. JONES. Let me tell Mr. Rubey that the difference between a microscopist and a xylotomist is \$900.

Mr. GRAVES. I might insert in the record that the work this man is doing is of very real, practical value, because he is making these studies in connection with the study of our strength tests. We want to know why woods fail under different stresses, and to determine that we examine the wood after it has been tested and learn the effect on the structure.

Mr. McLAUGHLIN of Michigan. I supposed the laboratory at Madison was doing that.

Mr. JACOWAY. Mr. Rubey has exhibited his ignorance here, and I want to get in the same class with him. What is the meaning of the terms "silviculture" and "dendrology," on page 134?

Mr. GRAVES. "Silviculture" is a technical term for forest production, forest growth and culture. That is a general term which we apply to measures for natural reproduction, replanting, or other work that looks to the continuance of the forests. "Dendrology" is a term applied to the study of an individual tree or species, as contrasted with the study of the development of the whole forest. It is rather the botanical side, contrasted with the forestry side.

The CHAIRMAN. Let us hear you on the next item.

Mr. GRAVES. The next item is on page 136, item 249, "For other miscellaneous forest investigations," etc. The real purpose of the requested increase of \$25,640 is to aid in the bringing about of better public sentiment in the national forest districts regarding our protective work. I have been very much concerned by the large number of man-caused fires in the forests. Lightning, of course, is something that we can not control, but carelessness in the woods is something which should, in the long run, be reduced to a minimum. We can stop the man-caused fires in two ways. One is by law enforcement and the other is by a better public sentiment.

The law enforcement we are taking care of through our regular organization and through the local departments, and we have already gained a good deal in that direction. For example, in California this past season there were over 200 convictions for starting forest fires in the national forests through carelessness or otherwise, and the result of that action has been widespread and very beneficial. At the same time, there is a great deal that can be done in the way of improving public sentiment in the different regions, and I should like to have attached to each of my district headquarters a man who can handle that side of the work. It is a question of public education in meeting with organizations of all kinds and getting out informational matter, pictures, exhibits, and things of that kind. I would like to go to the schools so that the children in the schools will learn something of the value of the forests and the need for care of them. That would take a large part of the proposed increase.

I would like also a small addition, a little over \$3,000, in connection with our maps. We have our maps photolithographed by the Geological Survey, and a little more money is required for that.

The CHAIRMAN. The next is item 250, "For the construction and maintenance of roads, trails, bridges, fire lanes," etc.?

Mr. GRAVES. This is an item for various improvements in the national forests.

The CHAIRMAN. Is this outside of the percentage allowed for roads?

Mr. GRAVES. Yes, sir; this is for improvements of all kinds.

The CHAIRMAN. You have a road fund, have you not?

Mr. GRAVES. We have a special road fund, yes.

The CHAIRMAN. Why do you include roads in this item?

Mr. GRAVES. That is the wording which has always been there, and I think it is desirable to leave it, because very frequently there are small stretches of a road which a few men could handle and under this appropriation they have authority to do it.

Mr. ANDERSON. What is the amount of the permanent appropriation that would be available for roads and trails in the forests next year?

Mr. GRAVES. There are two items, one of \$1,000,000, under section 8 of the Federal-aid road act, in cooperation with the States, and \$3,000,000 under the amendment to that act passed last year, making altogether \$4,000,000.

The CHAIRMAN. That is in the Post Office appropriation act?

Mr. GRAVES. Yes, sir. The work of building roads is being handled by the Bureau of Public Roads of the Department of Agriculture.

Mr. ANDERSON. I notice in your report that you refer to the 10 per cent item.

Mr. GRAVES. I should have added that also. Ten per cent of our receipts are available for roads in the national forests, which makes about \$450,000 for that purpose.

The CHAIRMAN. They are the gross receipts, including those for grazing privileges?

Mr. GRAVES. Yes; the gross receipts, which amount to about \$4450,000.

Mr. McLAUGHLIN of Michigan. That 10 per cent goes to the States?

Mr. GRAVES. Twenty-five per cent goes to the States and is spent by them for roads or schools.

Mr. McLAUGHLIN of Michigan. Then the States get more than that?

Mr. GRAVES. Ten per cent of the gross receipts is expended by the department itself in the construction of roads, and these other items come under the Federal-aid road act.

Mr. McLAUGHLIN of Michigan. Then, the States get 45 per cent?

Mr. GRAVES. In the original Federal aid road act, section 8, it was provided that 10 per cent of the gross receipts from those forests in which the road projects are located should be set aside for the reimbursement of the moneys appropriated for the national forests.

Mr. McLAUGHLIN of Michigan. Before we had any road act the law provided that a certain percentage of the receipts from the sale of timber should go to the States for certain purposes, for roads and schools.

Mr. GRAVES. Twenty-five per cent.

Mr. McLAUGHLIN of Michigan. Is that all?

Mr. GRAVES. Yes, sir.

Mr. McLAUGHLIN of Michigan. Did they not get another percentage for something else?

Mr. GRAVES. Ten per cent was appropriated later for the construction of roads within the national forests.

Mr. McLAUGHLIN of Michigan. I thought the States got something besides the 25 per cent?

Mr. GRAVES. No, sir; I am right about that.

The CHAIRMAN. Let us get clear exactly what is to be deducted from your receipts. There is 10 per cent for building roads?

Mr. GRAVES. Ten per cent of the receipts for the construction of roads by the Government; 25 per cent—

The CHAIRMAN. That is paid to the State?

Mr. GRAVES. Is appropriated to the States.

The CHAIRMAN. For roads or schools?

Mr. GRAVES. For roads or schools.

The CHAIRMAN. What else?

Mr. GRAVES. Another 10 per cent from those forests in which the road projects are located is set aside in the Treasury as against the appropriation under section 8 of the Federal aid road act.

Mr. McLAUGHLIN of Michigan. Is there not some direction to you as to how you shall use the 10 per cent fund for road building? Are they such roads as you want for your exclusive use or such roads as may be maintained for general use?

Mr. GRAVES. I do not recall the wording of the act, but the thought behind it was that the roads built within the national forests would necessarily help in the development of the community, and, of course, we are using the money in that spirit.

Mr. ANDERSON. How much?

Mr. HARRISON. Mr. McLaughlin, you will find those provisions on page 297 of the Book of Estimates.

Mr. ANDERSON. How much of this appropriation under this item is used for the construction of roads and trails in the national forests?

Mr. GRAVES. About \$100,000 of it was used in the last fiscal year for road and trail construction. This was in addition to maintenance.

Mr. ANDERSON. Is any of it used for new construction?

Mr. GRAVES. Yes; about \$100,000. This year we are doing our new construction of roads and trails primarily from the other item, and under item 250 we are endeavoring to catch up with the urgent demand for telephone lines and other improvements.

Mr. ANDERSON. What I want to know is whether any of this item is used for new construction?

Mr. GRAVES. This year probably very little of it. The design was to have the new construction taken care of chiefly from the other fund, but some trails will have been built in connection with the general improvement fund.

Mr. JONES. What character of roads were built; were there many different types, or are you using the word "trails" generally?

Mr. GRAVES. The word "trails" refers to the trails built in the forests primarily for purposes of fire protection and to open up and make the forests accessible. Those are the horse trails. The roads are well-graded, gravel roads. They are built, at least as far as all the major projects are concerned, under the direction of the Bureau of Public Roads. We are not building paved roads.

Mr. JACOWAY. What does it cost you a mile to build them?

Mr. GRAVES. They run all the way from \$2,000 to \$20,000 a mile. I have in mind one section of road in the State of Washington, which goes through a very heavy timber and is of heavy construction, which

to-day would cost \$20,000 a mile, but that is not a paved road; it is a dirt road.

Mr. JONES. Did you deduct the value of the stumpage that you cut off of these rights of way?

Mr. GRAVES. That would go into a separate item.

Mr. JONES. The cost of cutting the rights of way, the cost of felling the trees in the rights of way, was in the neighborhood of \$20,000 a mile.

Mr. GRAVES. That is for the entire cost of construction.

Mr. JONES. The salvage you got out of the stumpage is not deducted, is it?

Mr. GRAVES. No. I suppose when you come to the Bureau of Public Roads that Mr. McDonald will go into the details regarding the forest roads and the cost of construction under different circumstances.

Mr. JONES. In your statement of receipts from stumpage sold from any of this land, have you given credit for stumpage that was taken off of these roads?

Mr. GRAVES. Everything that is sold in the national forests is shown in the item of receipts.

Mr. JONES. And the actual cost to the Government for constructing this road would be the \$20,000 less what you got for the timber through these rights of way?

Mr. GRAVES. Yes; but that is not the average price by any means.

Mr. JONES. The cost of one road was \$20,000 a mile?

Mr. GRAVES. Yes; \$5,000 or \$10,000 a mile is the average cost of these mountain roads.

Mr. JACOWAY. In those States where they have improvement districts, or where there is a bond issue and they want to join up in order to build roads in the State, you cooperate in the State movement, do you not?

Mr. GRAVES. Yes. The Federal aid road act is a cooperative act, and there is cooperation in each State in these roads. In the amendment to the act last year, carrying further appropriations, the question of cooperation is made discretionary. So that, where roads are entirely within the forests and are more important to the Government than to a community, the Government may build the entire road without cooperation.

Mr. JONES. Is any part of the \$550,000 asked for here used for the work contemplated by that miscellaneous item of \$1,000,000, on page 271 of this report, that we pass every year?

Mr. GRAVES. No; that is entirely for fire emergency.

Mr. JONES. Yes.

Mr. GRAVES. That is entirely a question of fighting fires and fire suppression.

Mr. JONES. It does not include fire lanes, telephone lines, and all those things?

Mr. GRAVES. No. In connection with fire suppression, there might be some lanes built around the fire which, in short sections, might serve afterward; but they are not built for that purpose.

The CHAIRMAN. How much of this money is used for building fences?

Mr. GRAVES. About \$77,000 for fences, altogether. That includes \$29,000 for fences here and there on boundaries designed to control

the stock. We have a great many places where we really have trouble with trespass, which we find it is absolutely impossible to prevent until we are able to put drift fences here and there along the boundary, and the other \$48,000—

The CHAIRMAN. Are you responsible for the trespassing of the animals?

Mr. GRAVES. No, sir; but we want to keep the stock off the national forests, and there are two ways of doing it.

The CHAIRMAN. This is for keeping them off the forests, not from the farms and cultivated lands?

Mr. GRAVES. There are places where there is grazing land bordering the forests, where the tendency is for outside stock to drift onto the forest. It is impracticable to keep range riders on the boundary lines all the time, which is about the only way you can keep them off unless you build fences here and there.

Mr. McLAUGHLIN of Michigan. Why do you not want them to go into the forests?

Mr. GRAVES. They are not permitted to go on. They overstock the land.

Mr. McLAUGHLIN of Michigan. They are grazing on public lands?

Mr. GRAVES. Either on public land or private land.

The CHAIRMAN. Then the bulk of this increase is to be used for building fences?

Mr. GRAVES. Fully half of this increase would be used for fences.

Mr. ANDERSON. How are we going to justify the constantly increasing expenditures for range improvements without any increase in the grazing returns?

Mr. GRAVES. I think the justification for that would be that in many instances we shall have to take stock off of the forests unless we do make some improvements. There are conditions where, without fences, the stock can not be controlled and the lands are becoming overstocked; or the cattle drift upon the summer range too early in the spring and injure it. It is in such circumstances a question, in order to protect the forest, of either taking off the stock or putting in some drift fences.

In other instances there are areas where we could undoubtedly put on an increased number of stock with drift fences. Mr. Jardine has estimated that with these improvements we could add to the present number of stock about 18,000 head of cattle and about 56,000 head of sheep.

Mr. JONES. What added revenue would that bring?

The CHAIRMAN. About \$15,000.

Mr. JONES. At what expense?

Mr. ANDERSON. \$100,000.

Mr. GRAVES. That would be for one year.

Mr. JARDINE. That is the increase that we estimate we can take care of by a better handling of the stock and by opening up new areas. This increase will be used largely to take care of the stock, which must be removed from areas now overgrazed. It simply means we are oversold. We are behind our sales. Part of the expenditure will be to prevent the necessity of large reductions in stock. I tried to make clear this morning that a 4 per cent reduction would perhaps be the minimum limit, and that would amount to approximately \$100,000 reduction in grazing fees annually.

Mr. ANDERSON. If you increase the fees you would probably accomplish a reduction without much difficulty.

Mr. JARDINE. It depends, of course, on the increase. If you increase them beyond the limit of economic production, there would result a decrease in stock. You might increase them beyond their actual value and not produce a decrease, because in some cases there are salable crops on lands which would be unsalable without this grazing, and the men would have to pay the excess grazing fee out of their income from those crops rather than go out of business.

The CHAIRMAN. How do you keep them off at present?

Mr. JARDINE. We do not keep them off. That is the trouble. Let me cite one case that I examined this last summer in Nevada: A large area of foothill and desert adjoins the forest. Stock drift onto the forest. The range is in extremely bad condition, and we would have to have one rider for every mile on duty 24 hours a day to keep the stock off.

The CHAIRMAN. How much does it cost per mile to build a fence?

Mr. JARDINE. The cost approximately is about \$150 a mile on an average.

The CHAIRMAN. You have 1,600 miles now. How many miles would be required to fence in the whole forest?

Mr. JARDINE. I could not say offhand. The figures for next year's estimates for boundary fences are 228 miles and for other fences 335 miles.

The CHAIRMAN. Two hundred and twenty-eight miles is only a drop in the bucket.

Mr. JARDINE. It is a drop in the bucket, but it will take care of some of the more urgent cases, such as I mentioned here, where we can not function without them.

The CHAIRMAN. What will be the ultimate cost if we go into it on a wholesale scale?

Mr. JARDINE. I could not say. I do not believe it will be necessary on a wholesale scale if the ranges adjoining the national forests are eventually placed under administration, with proper cooperation, so that we can eliminate this outside drift. Then it will become a matter of individuals taking care of their stock and preventing trespass. As it is now, it frequently costs far more to prevent trespass than it would cost to put up fences.

The CHAIRMAN. What is being done to keep the stock on the reservations from trespassing on other lands?

Mr. JARDINE. There is very little done to keep the stock on the reservations from trespassing off. There is a good deal being done to keep them from trespassing within the forests. Individuals owning stock are expected to keep them from trespassing, and some of these other fences are to facilitate that work.

You can not, even by law, require something that is absolutely impracticable.

The CHAIRMAN. You have a sort of reciprocal arrangement?

Mr. JARDINE. There is very little tendency to drift off of the ranges in the national forests, because the outside ranges in summer are so dry that stock do not drift off. They all drift to the forest.

Mr. McLAUGHLIN of Michigan. Mr. Graves, I find on page 297 a provision for paying to the States a portion of the money received from forest reserves. I find that there is 25 per cent of the total

paid, not only for the sale of timber but from grazing and money received from every other purpose, and 5 per cent more is paid to the State for the same purpose for schools and public roads. It also says:

At the close of the fiscal year there shall be paid by the Secretary of the Treasury to the State, as income for its common-school fund, such proportion of the gross proceeds of all the national forests within said State as the area of lands hereby granted to said State for school purposes which are situated within said forest reserves, whether surveyed or unsurveyed, and for which no indemnity has been selected, may bear to the total area of all the national forests within said State.

You say you paid, as I understand the figures, \$85,000 for that purpose last year, and then a percentage additional out of the receipts of the national forests must be spent for the purpose of building and maintaining roads and trails within the State, and you have opposite that item \$500,000, so that, altogether, there comes out of the total revenues of the forests for this year \$1,785,000. I thought there was something going to the States.

Mr. GRAVES. Subsection 11 refers to Arizona and New Mexico.

The CHAIRMAN. Is that the Jones amendment?

Mr. GRAVES. Those are lands which otherwise would have been transferred to the States, granted to the States.

The CHAIRMAN. Is that what is commonly called the Jones amendment?

Mr. HARRISON. It was adopted in 1910, Mr. Haugen.

Mr. GRAVES. I think this provision was adopted in the enabling acts when the Territories became States.

Mr. McLAUGHLIN of Michigan. Thirty per cent of the total receipts of the forests goes to the States for schools and roads; 10 per cent more must be spent on roads and trails within the forest; and the policy is to construct those at such places as will be of benefit to the States. Those are measures to connect with roads the States have constructed outside of the forests.

Mr. GRAVES. That 5 per cent in the following section refers to lands acquired under the Weeks law.

Mr. McLAUGHLIN of Michigan. I was not speaking of that. The Weeks law is an out-and-out appropriation for the purchase of lands, is it not?

Mr. GRAVES. The act of March 1, 1911, was the Weeks law. First there was granted 5 per cent of the receipts to the States, and afterwards, on June 30, 1914, that was increased to 25 per cent, so as to place the new forests on the same basis as the rest of the national forests. The act of March 1, 1911, does not apply to the western national forests but only to the new forests.

That was changed afterward to 25 per cent, so they are all on the same basis now, receiving 25 per cent.

The CHAIRMAN. The next item.

Mr. GRAVES. In the same paragraph there is a request for some additional authority for the purchase of ground where necessary for the location of ranger stations. That is on page 138.

The CHAIRMAN. Why should you need more land, with the millions of acres that you have?

Mr. GRAVES. Frequently any land suitable for a ranger station which is owned by the Government is very inconvenient from the standpoint of the users of the forests, placing the ranger at a remote

and inconvenient point. Just to give an illustration, I have in mind a forest that I visited last year, where the ranger had to go about three-quarters of a mile off the road. In other cases the stations are 2 or 3 miles off the traveled road. This means that anybody who wants to reach him on business must take a long side trip. If the ranger is located near the road or a village he can handle his business better. There is less loss of time in his getting mail and supplies; he is more in reach of help in fighting fires, and users can get better service when they need a permit for wood or other material, when trouble occurs regarding adjustment, etc. An accessible forest officer is of greater service than one who is hard to reach.

Mr. McLAUGHLIN of Michigan. In that particular case who owns the land at the point on the road?

Mr. GRAVES. It is owned by a rancher. It would be necessary to purchase a site convenient to the public where we could put up a ranger station. This is very frequently the case, because lands near the roads so frequently have already been taken up. Sometimes it is desirable to have the ranger in a community where the land is private, but where there are no houses or rooms for rent. It should be borne in mind that the ranger station is an official headquarters. It is the ranger's office as well as his home.

The CHAIRMAN. The \$200 we gave you last year was not enough to go around?

Mr. GRAVES. That was for a particular site for a forest nursery for the Michigan National Forest.

The CHAIRMAN. You want \$5,000?

Mr. GRAVES. You will notice we are not asking for an additional appropriation.

The CHAIRMAN. You want \$5,000?

Mr. GRAVES. We wish authority to spend as much as \$5,000 of a standing appropriation to buy ten or a dozen sites during the year.

The CHAIRMAN. How about the new language?

Mr. GRAVES. The other new language is merely a change to make the item, which has appeared year after year, continuing legislation.

The CHAIRMAN. That has reference to publications?

Mr. McLAUGHLIN of Michigan. The present language says "no part of this appropriation," which might mean the entire amount of money carried by the Agriculture bill, or the appropriation for the Forest Service. I notice you propose to change "no part of this appropriation" to "no part of any funds appropriated for the Forest Service."

Mr. GRAVES. That law has always specifically applied to the Forest Service. The purpose is to leave it out by making it continuing legislation. The change proposed makes the provision apply to any funds that may be appropriated this year or any other year. There is no change in the sense of the clause at all.

The CHAIRMAN. The next item is 251, on page 140, "To enable the Secretary of Agriculture more effectively to carry out the provisions of the act of March 1, 1911," etc.

You have asked an increase of \$6,700?

Mr. GRAVES. That is in connection with the Weeks Act. This paragraph makes no appropriation. It merely places a limitation on the amount of money which may be expended in the city of Washington.

Authority is here requested to spend up to \$28,470 in connection with the expenses in Washington.

The CHAIRMAN. That expenditure is limited to Washington?

Mr. GRAVES. It comes out of the Weeks fund; this is merely authority to be able to spend that amount of money in the city of Washington.

The CHAIRMAN. The amount is needed?

Mr. GRAVES. Yes, sir. That finishes the main portion of the bill.

Mr. HUTCHINSON. Before we leave that I would like to ask you one or two questions. Have you in your bureau a grazing bookkeeping department separate from the other?

Mr. GRAVES. Yes, sir. We have not these last two years kept track of the time of the individual forest officers who may engage on various activities. Previously we did, and we are going to resume that as soon as we can get fully readjusted from the war conditions.

Mr. HUTCHINSON. I notice here, under item 248, note (b), you have a \$25,000 increase to provide for additional range surveys, estimates, and plans of grazing management.

Mr. GRAVES. Everything of that sort is kept separate.

Mr. HUTCHINSON. And in item 250 you have a \$100,000 increase for the management of the ranges.

Mr. GRAVES. The first item you speak of—

Mr. HUTCHINSON. I understand what it is for, but what I want to get at is whether this grazing proposition is a paying proposition to the Government, or whether there is any velvet in it at all, or not. It is of no benefit to the national forests, is it, to have these sheep there, unless it reduces the cost of living or something like that?

Mr. GRAVES. The direct benefit to the forest is in keeping down the vegetation, and there is a very real contribution in the way of fire protection. There is not the slightest question that the grazing does help in fire protection, because it does keep down the dry grass.

Mr. HUTCHINSON. The matter has been brought up here that we are not charging enough to the people who use the ranges, and that is what I want to get at—whether there is any benefit from these sheep and cattle going on the national forests.

Mr. GRAVES. The greatest benefit is the economic one of utilizing the resources in the production of stock and in building up communities.

The CHAIRMAN. We are very grateful to you Col. Graves.

(Thereupon the committee proceeded to consider estimates for another bureau.)

Statement of projects, activities, and expenses under lump funds, Forest Service.

	Allotment, 1920.	Estimate, 1921.	Increase.	Decrease.
Item 81—Forest supervisors, deputy supervisors, rangers, and guards:				
(a) For administration and protection of 147 national forests.....		\$1,673,540	\$1,673,540	.....
(b) For administration and protection of 1,095,022 acres added by Congress Oct. 29, 1919, to Idaho and Payette National Forests, Idaho.....		10,000	10,000	.....
Total.....		1,683,540	1,683,540	.....

¹ This amount formerly carried on statutory roll, which is correspondingly decreased. The apparent increase is therefore not an actual increase.

Statement of projects, activities, and expenses, etc.—Continued.

	Allotment, 1920.	Estimate, 1921.	Increase.	Decrease.
Items 83 to 230—National forests:				
(a) Protection.....	667,700	\$804,372	\$136,672	
(b) Timber sales and forest management.....	149,042	218,480	69,438	
(c) Grazing administration.....	32,642	68,170	35,528	
(d) Care of game (Wichita Forest and Game Preserve).....	3,069	5,669	2,600	
(e) Rent of offices and storehouses.....	66,234	67,558	1,324	
(f) Office assistants (temporary and janitor).....	20,945	20,945		
(g) Telephone rentals and charges.....	20,545	21,777	1,232	
(h) Freight, express, drayage, and hauling.....	23,827	24,336	709	
(i) Travel.....	273,995	279,474	5,479	
(j) Field and camp supplies.....	24,718	27,100	2,382	
(k) Maintenance of Government horses, boats, and trucks.....	45,004	47,254	2,250	
(l) Maintenance of Government speeders, motorcycles, and automobiles.....	5,799	7,095	1,296	
(m) Purchase of speeders and motorcycles.....	3,300	3,863	563	
(n) Forage (forest officers' horses on official work).....	178,595	178,595		
(o) Miscellaneous activities and expenses.....	71,496	72,429	933	
Total.....	1,586,711	1,847,117	260,406	
(p) Expense of administering 1,095,022 acres added by Congress Oct. 29, 1919, to Idaho and Payette National Forests, Idaho.....		29,755	29,755	
Total.....	1,586,711	1,876,872	290,161	
Items 231 to 237—General administration—Field districts:				
(a) Rent of offices.....	19,420	19,420		
(b) Telephone rentals and charges.....	5,455	5,455		
(c) General directive work.....	43,888	43,888		
(d) Fiscal and legal work.....	13,300	13,300		
(e) Supervision of organization and personnel.....	56,755	56,755		
(f) Supervision of silvicultural work.....	90,782	90,782		
(g) Supervision of grazing work.....	36,630	36,630		
(h) Supervision of lands work.....	42,750	42,750		
(i) Supervision of engineering work.....	50,660	50,660		
Total.....	359,640	359,640		
Item 238—General administration—Washington:				
(a) Telegraph and telephone charges.....	8,300	8,300		
(b) General directive work.....	19,379	16,859		\$ 2,520
(c) Fiscal and legal work.....	10,450	10,450		
(d) Supervision of organization and personnel.....	14,300	14,300		
(e) Supervision of silvicultural work.....	19,207	19,207		
(f) Supervision of grazing work.....	9,800	9,800		
(g) Supervision of lands work.....	13,500	13,500		
(h) Supervision of engineering work.....	17,124	17,124		
(i) Supervision of national forest investigative work.....	10,790	10,790		
Total.....	122,850	120,330		2,520
Item 240—Land classification:				
(a) Land classification.....	37,939	27,000		10,939
(b) Forest homestead surveys.....	48,346	45,000		3,346
(c) Land exchange.....	20,715	35,000	14,285	
Total.....	107,000	107,000	14,285	14,285
Item 242—Insect control:				
(a) Preventing and reducing damage to national forest timber from insects.....		25,000	25,000	
Total.....		25,000	25,000	
Item 243—Supplies and equipment:				
(A) Purchase of—				
(a) Field equipment and surveying instruments.....	37,424	41,391	3,967	
(b) Furniture and office equipment.....	15,077	16,731	1,654	
(c) Stationery and office supplies.....	48,826	52,687	3,861	
(d) Laboratory equipment.....	13,540	13,500		
(e) Station and photographic supplies.....	11,872	13,500	1,628	
(f) Field libraries and law books.....	2,750	2,750		
(g) Medical supplies.....	1,156	650		506
(h) Lumber and nails.....	1,040	1,400	400	
(i) Operation of rubber-stamp plant.....	600	500		100
(j) Rent, heat, light at supply depot, Ogden, Utah.....	3,775	3,871	96	
(k) Freight, express, and parcel post.....	18,500	20,100	1,600	
(l) Salaries and travel, property assistant and property auditor.....	6,620	6,620		
Total.....	161,100	173,640	13,116	606

¹ Transferred to statutory roll of Division of Publications.

Statement of projects, activities, and expenses, etc.—Continued.

	Allotment, 1920.	Estimate, 1921.	Increase.	Decrease.
Item 244—Forest products:				
(A) Washington				
(a) Industrial investigations and economics	21,460	\$21,460		
(B) Madison Laboratory:—				
(a) Director's office	9,100	9,100		
(b) Operation	9,485	9,485		
(c) Engineering	4,575	4,575		
(d) Photography	1,800	1,800		
(e) Kiln drying and wood structure	14,300	37,800	\$23,500	
(f) By-products and chemical studies	18,980	61,980	43,000	
(g) Lumbering	2,000	2,000		
(h) Preservation	15,600	15,600		
(i) Pulp and paper	16,600	16,600		
(j) Mechanical properties of woods	13,220	54,990	41,760	
(k) Containers and shipping boxes	2,690	21,340	18,740	
(l) Commercial demonstration	25,000	25,000		
(m) Plywood, glues, and laminated stock		21,400	21,400	
(n) Technical studies of industries		18,600	18,600	
(C) Studies of forest products in field districts	18,540	26,540	8,000	
Total	173,260	348,260	175,000	
Item 245—Range investigations:				
(a) Grazing studies at Great Basin Experiment Station, Utah	6,420	8,720	2,300	
(b) Grazing studies on Jornada and Santa Rita Range Reserves, New Mexico and Arizona	11,642	14,642	3,000	
(c) Grazing studies on national forest ranges	8,350	28,050	19,700	
(d) Supervision and economic botany work, Washington	8,588	8,588		
Total	35,000	60,000	25,000	
Item 246—Forest planting:				
(a) Planting investigations and general supervision	23,092	23,092		
(b) Forest nurseries	42,922	42,922		
(c) Planting work	73,946	73,946		
(d) Seed collection and extraction	5,680	5,680		
Total	145,640	145,640		
Item 247—Silvicultural investigations:				
(a) Forest investigations and experiment station work	50,478	84,478	25,000	
(b) Forest distribution	1,800	1,800		
(c) Forest measurements	2,200	2,200		
(d) Forest economics	4,000	29,000	25,000	
(e) Dendrological studies	3,800	3,800		
(f) Cooperation with States in forestry practice	3,450	3,450		
(g) Cooperation with timberland owners in extending practice of forestry	4,000	29,000	25,000	
Total	78,728	153,728	75,000	
Item 248—Appraisal of forest resources:				
(a) Timber surveys on national forests	49,000	69,000	20,000	
(b) Grazing range reconnaissance on national forests	31,000	56,000	25,000	
Total	80,000	125,000	45,000	
Item 249—Miscellaneous forest investigations:				
(a) Editorial and review	6,235	6,235		
(b) Information of public regarding forestry, need of protection, etc.	9,145	31,585	22,440	
(c) Maps and atlas folios	15,900	19,100	3,200	
Total	31,280	56,920	25,640	
Item 250—Improvements:				
(A) Maintenance of existing improvements (exclusive of range improvements)	139,780	151,000	11,220	
(B) Construction—				
(a) Protective—				
Telephone lines	150,750	108,000		\$42,750
Fire breaks	11,550	16,500	4,950	
Lookout structures	24,000	20,000		4,000

* In addition to the above 1920 Forest Service allotment to the Madison Laboratory, there was allotted \$140,000 by the War and Navy Departments for use during the fiscal year 1920 in conducting various tests and investigations.

Statement of projects, activities, and expenses, etc.—Continued.

	Allotment, 1920.	Estimate, 1921.	Increase.	Decrease.
Item 250—Improvements—Continued.				
(B) Construction—Continued.				
(b) Administrative—				
Dwellings.....	22,400	\$33,350	\$10,950	
Barns.....	10,230	8,250		\$1,980
Other buildings.....	7,598	7,860	262	
Pasture fences.....	10,320	10,750	430	
Water developments.....	18,040	16,400		1,640
Miscellaneous projects.....	5,332	2,890		2,442
Additions to buildings.....		20,000	20,000	
Ranger station sites.....		5,000	5,000	
	400,000	400,000	52,812	52,812
(C) Range improvements—				
(a) Maintenance of existing range improvements.....	1,995	9,705	7,710	
(b) Drift and boundary fences.....	22,040	77,792	55,752	
(c) Water development.....	14,025	40,086	26,060	
(d) Grazing studies—Inclosures.....	260			260
(e) Corrals.....	1,908	645		1,263
(f) Stock driveways.....	2,793	10,772	7,979	
(g) Stock bridges.....	524	2,325	1,801	
(h) Larkspur eradication.....	6,455	8,676	2,221	
	50,000	150,000	101,523	1,523
Item No 2 (Miscellaneous)—Emergency fire fighting:				
(a) Fire fighting expenses (labor, supplies, tools, etc.) on national forests in extraordinary emergencies.....	150,000	1,000,000	850,000	
Total.....	150,000	1,000,000	850,000	
Item No. 3 (Miscellaneous)—Cooperative fire protection:				
(a) Cooperation with States (24 in 1920 and 26, at least, in 1921), for wages of lookouts, watchmen, and patrolmen and fire protection of forested watersheds of navigable streams.....	91,500	186,060	94,560	
(b) Administration in and inspection from Washington and the district foresters' offices at Portland, Oreg., Missoula, Mont., San Francisco, Calif., Odgen, Utah, and Denver, Colo.....	8,500	13,950	5,450	
Total.....	100,000	200,000	100,000	

¹ Included in the Forest Service portion of the Agriculture appropriation bill for 1920.



COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Tuesday, January 6, 1910.

The committee met at 10 o'clock a. m., Hon. Gilbert N. Haugen (chairman), presiding.

The CHAIRMAN. Mr. Harrison, who do you desire to appear this morning?

Mr. HARRISON. Mr. Chairman, if it is agreeable to the committee, we will take up the estimates of the Bureau of Chemistry this morning, which appear on page 141. Dr. Alsberg will present them.

BUREAU OF CHEMISTRY.

The CHAIRMAN. The committee will be glad to hear Dr. Alsberg.

**STATEMENT OF DR. CARL L. ALSBERG, CHIEF OF THE BUREAU
OF CHEMISTRY, DEPARTMENT OF AGRICULTURE.**

Dr. ALSBERG. Mr. Chairman, I understand it is your desire to have us present the general situation, so far as our bureaus are concerned, before we go on to details. The most important factor in the Bureau of Chemistry at the present time—the most important difficulties—are the personnel difficulties which are the result of the existing dislocated industrial conditions. The bureau has been losing each year for the last two or three years about 40 per cent of its technically trained people. These losses have not been among the minor men exclusively, but have included many of the leaders of the work. They have gone out from the bureau not because they were dissatisfied with the Government service; not because they preferred industrial work; not because they were to receive from 50 to 300 per cent increases in income; but simply because, in many cases, the Government salaries were such that they could not break even at the end of the year under the most economical conditions of living. Very much against their wishes they were compelled to leave the Government service.

The result is there has been a pretty complete disorganization and disintegration in the bureau's force and in its organization, so that we are in pretty bad shape, though not in any worse shape than other Government services that I could mention. It won't take very long before the bureau will have what amounts to pretty much a new and green force, with very few people left in it who are experienced or trained for the work. In short, we are just

falling to pieces. That is the present situation. What can or should be done about that is not for me, Mr. Chairman, to say.

I have a list here, in a statement which I have prepared for insertion in the record, giving a series of specific instances of losses from the personnel of the kind I have described. The situation at the present time is so serious that we are not going to have any kind of a properly trained organization left very shortly; we are pretty thoroughly disintegrated and disorganized.

Dr. C. S. Hudson, one of our ablest research men, who was in charge of the carbohydrate laboratory of the bureau, and who received a salary of \$4,000 per annum, resigned to take up consultation work paying \$8,000 and commissions. He is making not less than \$12,000 per annum, or three times the salary he received from the Government.

Dr. Mary E. Pennington, whom most of you know as having been in charge of the poultry and egg work of the bureau, and who received a salary of \$3,780, resigned to accept a position with a commercial firm in New York at a salary of \$10,000.

Dr. H. D. Gibbs, who was chemist in charge of the color laboratory at a salary of \$3,500 per annum, resigned to accept a position with the Du Pont Co. at a salary of \$10,000 per annum and a bonus which will net him a considerable additional amount.

Dr. J. A. LeClerc, who was the chemist in charge of our plant analysis laboratory at a salary of \$3,000 per annum, resigned to accept a position with a commercial concern at \$5,000.

The loss of these and other people from the bureau who are in direct charge of important lines of investigational work results in a serious delay in the production of results. Not only have we lost many of our chemists in charge of important lines of work, but the second and third and fourth men in line for these positions in many instances have resigned to accept positions in the commercial world at salaries at from two to three times as much as they received from the Government.

Mr. J. K. Dale, who was under Dr. Hudson, was in charge of the sirup investigations and received a salary of \$2,280 per annum from the Government. He resigned to accept a position with a commercial food concern at a salary of \$4,000 per annum.

Mr. Conover, who was the second in charge in the color investigation laboratory, has resigned to accept a commercial position in Pittsburgh at a very much larger salary than he received in this bureau.

While it is not possible to mention in a brief space all the men who have left the service of the bureau, the following will indicate to you the increases which our chemists are receiving:

Mr. H. S. Bailey, who received \$2,760 per annum, resigned to accept a position at \$4,000 per annum.

Mr. E. Bloomberg, who received \$1,800 per annum, resigned to accept a position at \$5,000 per annum and bonus.

Mr. R. M. Bohn, who received \$1,200 in this bureau, accepted a commercial position at \$2,400 per annum.

Mr. E. D. Clark, who received \$3,000 per annum in this bureau, resigned to accept a position paying \$6,000.

Mr. J. L. Clay, who received a salary of \$1,620, resigned to accept a position paying \$2,600.

Mr. J. K. Dickson, who received \$1,440 in this bureau, resigned to accept a position paying \$3,000.

Mr. C. D. Geidel, who received \$1,800, resigned to accept a position paying \$3,000.

Mr. Samuel Ginsberg, who received \$1,620, resigned to accept a position at \$3,800.

Mr. W. T. Johnson, who received \$1,800 in this bureau, resigned to accept a position paying \$4,000.

Mr. H. A. Lubs, who received \$2,040 in this bureau, resigned to accept a position paying \$3,000 per annum.

Dr. E. C. Merrill, who received a salary of \$2,280 in this bureau, resigned to accept a position paying \$3,500 per annum.

Mr. L. A. Round, who received \$2,520 in this bureau resigned to accept a position paying \$4,000 per annum.

Mr. R. R. Williams, who received a salary of \$2,240 per annum in this bureau, resigned to accept a position paying \$5,000 per annum.

This list includes only a few of the men who have left to accept better salaries.

We are losing not only a number of our chemists and investigational men, but also our food and drug inspectors, and for the same reasons.

Mr. J. A. Earnshaw, a food and drug inspector of this bureau receiving a salary of \$2,000 per annum, resigned to accept a position at \$3,600 per annum.

Mr. D. F. Fisher, an inspector who received a salary of \$1,800, resigned to accept a position at \$2,250 per annum.

Mr. J. R. Garner, who received a salary of \$2,500 per annum, which is the highest salary paid food and drug inspectors, resigned to accept a position at \$3,500 per annum.

Mr. H. C. Kitchen, a food and drug inspector at \$2,000, resigned to accept a position at \$3,000 per annum.

Mr. Herman Lind, a food and drug inspector, receiving \$2,040 per annum in this bureau, resigned to accept a position at \$4,700 per annum.

Dr. H. A. McIntyre, who received a salary of \$2,040 per annum, resigned to accept a position at \$3,000 per annum.

Mr. W. W. Paine, a food and drug inspector who received \$1,800 in this bureau, resigned to accept a position paying \$4,400 per annum.

These are but a few instances of a number I might mention. Last year we lost 20 per cent of our inspection force, and we receive additional resignations every month.

I also understand it is your wish to have me present the views of the Bureau of Chemistry with reference to making these lump-sum positions statutory. I can only say, gentlemen, that the disorganization that is now taking place, owing to the disproportion of the salaries in the service as compared with the cost of living, will be infinitely accentuated by placing the chemists and technical employees upon the statutory roll. To make their places statutory will put them up against the hopeless outlook of having their promotion depend upon the death rate of their superiors.

That is what it will mean, gentlemen. At the present time, we have been able to keep some of the more able younger men as a

result of the loss of our high-priced men. In other words, some of the more promising men we have been able to keep in the hope of training them to fill the more responsible positions, because the salaries which have become available and many salaries have become available, when the older men at the higher salaries resigned, are to some extent available, if the secretary consents, for increasing the salaries of some of the younger men who would otherwise leave us. In consequence, we have pursued a policy of contracting our force, a contraction which we have not brought about by laying anybody off, but which has come about by virtue of men resigning and not having their positions filled. We have not been able to get, at salaries we are able to pay, competent men to fill them; and I would sooner have the work contracted and less work done than to load up the service with incompetent men we will never get rid of.

Now, if all of these salaries were made statutory and this crisis either continued or a similar crisis should arise five years from now, or 10 years from now, and all the positions were statutory, it would be quite impossible to do anything for anybody. We would have to promote men only when somebody resigned or somebody died. If a vacancy occurred that could not be adequately filled, we would be confronted with the dilemma of filling that vacancy with a man who was not competent to fill it or else have the money revert into the Treasury, instead of making that money available as it is at present, for the readjustment, as near as we can, of the salaries of the men who are thoroughly deserving.

Mr. McLAUGHLIN of Michigan. You said you would rather contract your work than to employ incompetent men you can never get rid of?

Dr. ALSBERG. Yes.

Mr. McLAUGHLIN of Michigan. Do you mean if you employ a man and find him incompetent you can not get rid of him?

Dr. ALSBERG. I mean, Mr. McLaughlin, that it is very hard at the present time in any Government service to get rid of a man who is not competent, because we have to prove inefficiency, and inefficiency is the hardest thing in the world to prove. He may be a man who does his work conscientiously and does it reasonably well, but he is not a good investigator, let us say, and there is not any good handle that you have for getting rid of him.

Mr. RUBEN. Can you not just tell him that you do not need his service any longer and that after the first of next month he must find another place?

Dr. ALSBERG. No. If I could do that——

Mr. RUBEN. Why can you not do that?

Dr. ALSBERG. Because of the procedure necessary to carry out the spirit of the civil service laws. Of course, if I could do that and if I had the power to select the best man I could find and if I had the salary available to hire him when I found him, I could, and every other bureau chief could, make the Government service more efficient than it is at the present time. I do not want to seem to be claiming that our service is particularly inefficient (I do not think it is, of course), but I recognize there is room for a great deal of improvement and the ability to get rid of people without difficulty and the ability to get people without the great difficulties there are

now in the way of getting specially trained men, hampers us very seriously in making our service as efficient as possible.

The CHAIRMAN. In what respect are you hampered in making selections, Doctor?

Dr. ALSBERG. You go to a first-class research man in a high-grade institution, and you ask him whether he will come into the Government service. In the first place we can not pay the salaries that to-day are commensurate with the salaries being paid for such services on the outside. Five years ago the salaries were rather better in the Government service than they were, say, in the agricultural colleges and State universities. Nine times out of 10 he will say, "The salary does not interest me." That is one handicap. Suppose the salary does interest him, then you say, "Well, you know, there are certain things you have to do; you have to take a civil service examination." You explain to him that that civil service examination is one that will not give him, because he is a thoroughly competent man, any special difficulty in passing.

A man who is 40 or 45 years old and who has a respected position in the country, very frequently regards the requirement of having to pass a civil-service examination as a personal indignity. He does not need the Government job especially. He has a satisfactory job. He comes to the Government because it gives him perhaps a little more opportunity, or because he believes in changing his line of work once in a while. But man after man, when I thought the whole thing was arranged, has refused to take the civil-service examination. He will say, "My standing in my profession is such I do not see why I should have to take a civil-service examination, and I won't do it."

Then suppose you get him to take the civil-service examination; he may fall under the apportionment in such a manner that some far less competent man happens to be certified and you have to take him.

Mr. McLAUGHLIN. Do you have to take a man you feel yourself is not competent?

Dr. ALSBERG. Usually I take nobody in such cases. Our usual method to leave the place vacant rather than to fill it, until somebody who is competent is qualified. It happens, of course, very frequently that places are vacant for six months or a year, because nobody on the civil-service registers, in our judgment, seems competent. Very frequently we get a good average man and lose the genius, which would not be the case in industrial life, for example.

Mr. HUTCHINSON. Suppose you do take a man and afterwards he proves to be inefficient; you say you can not get rid of that man?

Dr. ALSBERG. Oh, you can get rid of that man, but it is very difficult. You have to prefer charges. Such men are not dishonest, they are not crooked, they are doing their work the best they are able according to their abilities; but they just do not happen to have that degree of ability which you think should go with the job. Then you have to prefer charges, unless you can induce him to resign, which they sometimes will do. You prefer charges and there has to be a regular trial and you have to prove inefficiency. Of course, if a man is crooked (which almost never happens, at least to my knowledge in the department, very rarely at any rate), there is no difficulty; but if it is just a matter of judgment whether a man

is efficient or not efficient, competent or not competent, it is very difficult.

Mr. McLAUGHLIN of Michigan. If he is on the lump-sum roll, can you not reduce his salary and appoint him where he would not want to take it?

Dr. ALSBERG. Yes; certainly that can be done. But you will recognize, gentlemen, that that is a very unsatisfactory way of dealing with the situation, because if you do that you have a sorehead in your organization, you have somebody who is unhappy and discontented, and that reflects on the whole esprit de corps. It would be much better if such people could be gotten rid of promptly.

Mr. McLAUGHLIN of Michigan. It seems to me in this scientific work, or the kind your bureau is doing, that your opinion, approved by the Secretary of Agriculture, as I suppose it must be, would decide the matter, and that the question of retaining that man would practically be up to you and the Secretary.

Dr. ALSBERG. It is, Mr. McLaughlin, but when you have—

Mr. McLAUGHLIN of Michigan. This committee and the Congress itself may not have been liberal in the matter of salaries—

Dr. ALSBERG. I think this committee has—

Mr. McLAUGHLIN of Michigan. I feel—it is my own opinion any way—that the men ought to be well paid and they ought to be competent men in every instance, and we have to rely on you.

Dr. ALSBERG. You are right.

Mr. McLAUGHLIN of Michigan. It is not encouraging to us to feel that money is appropriated for men who are not competent for the places, and it is rather discouraging to feel that the *modus operandi* is such that the incompetent man must be retained.

Dr. ALSBERG. I do not mean to create the impression, of course, we have a large number of incompetent men.

Mr. McLAUGHLIN of Michigan. I was not suggesting that, but inevitably you will get some who are not competent. Must they remain?

Dr. ALSBERG. They do not, as a matter of fact, but it takes time to get rid of them.

Mr. McKINLEY. As I understand it, you are making this argument to show that, in order to keep the competents there, you must have a lump-sum appropriation instead of a statutory roll?

Dr. ALSBERG. That is the point exactly, sir; that at the present time it is possible, if you get a young man who is particularly remarkable and competent, to move him along; you can raise his salary and you can soon get him into a leading position; whereas, if we had the statutory places only, he would not be promoted unless somebody in a statutory position at a higher salary died, or resigned, or was dropped. That is the situation exactly. Under the present circumstances, we happen to be in a position where we can not get competent men, owing to the abnormal conditions, and we can contract our force and give a few particularly desirable men the necessary little increase of salary with the money that is made available from places that can not be filled. All that would be impossible if they were on the statutory roll.

Mr. McKINLEY. In other words, you feel this way—that, rather than have \$1,000,000 allotted to individual places, you would prefer to have \$700,000 or \$800,000 in a lump sum?

Dr. ALSBERG. Absolutely, sir.

Mr. McKINLEY. You would get better results?

Dr. ALSBERG. We would get more efficiency and get nearer 100 cents for the dollar than we would under the other scheme.

The CHAIRMAN. Doctor, you have had lump sums all this time?

Dr. ALSBERG. Yes.

The CHAIRMAN. And you are complaining now that it has not worked out?

Dr. ALSBERG. No, sir; I am not complaining—

The CHAIRMAN. You said the service was disintegrating and started to state the handicap. What is the handicap in making your appointments?

Dr. ALSBERG. The largest handicap is the present scale of salaries; that is the largest handicap. The next handicap is the difficulty of getting people through the civil service under existing conditions. That is not the fault of the civil service; that is the fault of the conditions.

The CHAIRMAN. Are there any others?

Dr. ALSBERG. Those are the two main handicaps. I was going on to show that to put the men on the statutory basis would add a tremendous additional handicap, because every man would then know he could never expect a promotion unless somebody in a statutory position paying more than the position he held resigned, or died, or was dropped. If that is known, we won't be able to get anybody into the service if he can get a place somewhere else.

The CHAIRMAN. You furnish us every year with an estimate for salaries, and we assume, of course, when you furnish us this list that is what you intend to pay.

Dr. ALSBERG. That is quite right.

The CHAIRMAN. Are we to understand now that does not amount to anything? Are we just to brush it aside and pay no attention to it?

Dr. ALSBERG. No, sir.

The CHAIRMAN. What does it mean if it does not mean what is stated in the estimates?

Dr. ALSBERG. It does, but it varies each year and there are changes each year. What you see printed here now covers readjustments it is proposed to make when this appropriation becomes available. It does not represent what is going on this year. That was forecast as nearly as it was humanly possible to forecast it, when the present appropriation estimates were submitted. It has not been adhered to absolutely this year, because we have lost 100 men. This represents, as nearly as it is humanly possible to forecast, what we expect to do during the coming year. Does that answer your question, Mr. Chairman?

The CHAIRMAN. Of course, you will be left some leeway, but, if you propose to do anything and if we appropriate money for a certain purpose, why should it not be written into the law?

The CHAIRMAN. You make your estimates stating that you are going to pay these scientists so much. We do not know who you are going to employ; that is for you to determine. You furnish us with an estimate stating that you propose to employ so many at such a salary.

Dr. ALSBERG. There is no reason why a chemist who is now getting \$3,000 should not be put on the statutory roll if that salary could be changed or modified from time to time. But what is the practical result of doing it? It means if in two or three or four years we come before a committee and ask that committee to increase that man's salary, \$200 or \$500, it is not done either by the committee or——

The CHAIRMAN. I beg your pardon, Doctor; we have increased salaries where you have never estimated for increases. You have never had any trouble, when you have made a showing for an increase in salaries, in getting the increase. We carry you on the statutory roll.

Dr. ALSBERG. Yes.

The CHAIRMAN. Why could not some one under you be carried on the statutory roll as well?

Dr. ALSBERG. That is very true, Mr. Chairman, but it must be known to you that statutory positions, as a matter of fact, are only changed with the greatest difficulty. The Secretary of Agriculture has on several occasions endeavored to have the statutory salary of the Chief of the Bureau of Plant Industry, and, I believe, also the Chief of the Bureau of Animal Industry, increased, just to take a technical position which happens to be statutory as an example. He has endeavored on a number of occasions to have the salaries of those two officers raised by \$1,000 and he has never succeeded in doing it. That has been attempted now for a number of years. I do not know where the failure was, but that is a matter of no consequence. The same thing applies to the clerical positions. Time and time again an effort is made to have the salary of some one on the clerical roll raised \$200.

The impression I meant to convey was that whenever a position is made statutory it is almost impossible to get Congress to change that salary and the man resigns when \$200 or \$500 would keep him in the service.

Mr. RUBEY. Let me make this suggestion right there: It has frequently happened that the committee here has recommended to Congress a number of changes, but points of order have been made against them and they have gone out.

Dr. ALSBERG. I know. I was not criticizing the committee.

The CHAIRMAN. It is quite true, Doctor, that a number of increases have been made without the recommendation of the Secretary. We have increased salaries in the past and I have an idea the committee will increase some of the salaries this time, although no recommendations have been made by the Secretary.

Dr. ALSBERG. I do not mean to imply that; I am well aware those increases of statutory positions have usually gone out on points of order in the House and I am also well aware that this committee has frequently not recommended increases in positions because they feared they would go out on a point of order in the House and they did not wish to jeopardize the more important features of the bill by having somebody make a point of order.

The CHAIRMAN. As you know, nearly every salary in this bill can be increased without raising a point of order.

Dr. ALSBERG. Then I am mistaken.

The CHAIRMAN. Why not some of these people on the statutory roll? I do not contend we should put all of them on the statutory roll, but it is a business way of doing things to put some on, they should go on.

Dr. ALSBERG. I think there are certain very definite reasons. One reason is, as I have just endeavored to indicate, it is very difficult to have the statutory salary modified in any direction.

The CHAIRMAN. You have to go to Congress to have it modified and Congress has to pass upon it.

Dr. ALSBERG. Congress has not at the present time exercised its authority with reference to these positions, so that there could be no question about getting around Congress, because Congress has chosen not to exercise its authority. Of course, if Congress fixes these positions as statutory positions, there could be no attempt and will be no attempt made to get around Congress. That is not at issue. It is merely the difficulty of having Congress, which has many important things to do besides worrying about an individual salary—of getting Congress to modify the salaries from year to year to meet the requirements.

The CHAIRMAN. Of course, you understand Congress can not examine the candidates and ascertain their efficiency and merit. We must necessarily rely upon your statement. If your statement warrants an increase, the increase is made; but if you fail to make a showing, of course, the committee rejects the recommendation, and it should do so. In certain instances, of course, we have to turn money over in a lump sum and have its use discretionary with somebody else. Possibly you should have discretion in the matter of statutory positions, but, in our opinion we feel that we would not be doing our duty if we did not make these places statutory positions where it is possible to do so. It seems to me that if you would take the committee into your confidence, the matter might be ironed out and satisfactorily disposed of. I think that sort of arrangement would at least be more satisfactory to Congress and to the country at large. The country is not satisfied with everything that is being done by the Government. We are not finding fault with this department.

Mr. HARRISON. The greatest difficulty is in making specific estimates for salaries so far in advance.

The CHAIRMAN. You have made them before; you have estimated every year.

Mr. McKINLEY. Is not this your trouble—I find it so in our business: For instance, these salaries go in effect the 1st of next July and about the 1st of next September the man you are counting on is offered 50 per cent more in private life and he resigns from the department, and you can not estimate for that ahead?

Dr. ALSBERG. That has happened in the last year probably 50 times, Mr. McKinley, and we can not estimate ahead for that. Another reason is you gentlemen appropriate a certain sum of money to do a certain piece of work and you will specify certain positions that should be filled under that sum of money. We will estimate "one chemist at \$4,000, two at \$3,000, two at \$2,000, and two at \$1,500," or whatever the number may be. Then a situation arises such as Mr. McKinley has just stated; the \$4,000 man resigns on you

and goes to a commercial company at \$10,000 or \$12,000. That is what is happening right along at the present time. Perhaps you can not find a \$4,000 man to fill his job, and you either have to let that money lapse or appoint somebody you could really get for less money to take the \$4,000 job. Then if you do not appoint anybody, the money lapses and the work is not done efficiently.

Mr. McLAUGHLIN of Michigan. As to the Civil Service Commission, I presume you prescribe or you determine the qualifications and the character of the examination that is taken, do you not?

Dr. ALSBERG. Yes; and the Civil Service Commission is giving us very excellent service. I do not want to be understood as criticizing, but the point is, lots of people, the best men, will not take the civil-service examination. The best men do not have to look for a job and do not want to be bothered.

Mr. McLAUGHLIN of Michigan. I can understand that, but I do not understand why the Civil Service Commission or the authority that passes on your suggestion of dropping a man is not willing to take your recommendation when they follow it entirely in the matter of the examination and selection of the men.

Dr. ALSBERG. They do not do it entirely, Mr. McLaughlin. Our people do not read the papers. That, of course, would make a farce of the examination. I simply specify "this is the training, this is the experience, these are the qualifications that are needed to fill the job," and the Civil Service Commission does all the rest of it. We do not have any control over that.

Mr. HARRISON. The Civil Service Commission may change these requirements and does so on occasions, usually after consultation with the officers of the department.

The CHAIRMAN. Just one more word about salaries. In every well and properly conducted business there is always a discussion as to the salaries. The man at the head of the organization is authorized to carry out the decision made, and it is his duty to do it. Any business that does not do that is not worthy of confidence. I think Mr. McKinley will agree with me that his associates, in whatever enterprise they are interested, handle it in that way; I know a thorough business organization would not undertake to do business in any other way.

Mr. McKINLEY. We would probably do this: The board of directors would say to the manager "Now here, you get this man for \$5,000 a year, but if you can not get him for \$5,000 and you have to pay him \$7,000, we will allow you the \$7,000."

Dr. ALSBERG. That is just what the lump-sum funds permit within the \$4,500 limit which Congress has placed on salaries paid out of the lump-sum funds.

The CHAIRMAN. That is exactly what is proposed to do to put a number on the statutory roll where there is no question about the salary being changed and then leave a sufficient amount, a leeway, to take care of the others.

Mr. ANDERSON. You could settle all this very easily by just getting rid of the high cost of living.

Dr. ALSBERG. If you can put the cost of living back to where it was in 1914, my difficulties in running the Bureau of Chemistry would be solved, because it all practically comes back to the disproportion of salaries to the cost of living.

Mr. McKINLEY. Is this your idea, that we are now under abnormal conditions, and if the matter could slide along for a year or two, until we know definitely whether salaries are going to stay so high or whether they are going to come down, you could run your department better with lump-fund appropriations than you could if we put them on the statutory roll just now?

Dr. ALSBERG. I think so. Of course, I am assuming something would be done, temporarily, in the meanwhile; otherwise I won't have anybody left the way it is going now. Of course, if you want to let things slide and build up a new organization two years from now when you know what is going to be done, that could be done, and we can hold together some kind of a limping, half-organized affair for a year or two under existing conditions, and then you might start again.

The CHAIRMAN. You are asking for \$428,090 on the statutory roll. According to your contention, that ought all be wiped out and a lump-sum appropriation of \$428,090 substituted.

Dr. ALSBERG. I could run the Government's business more efficiently if that were done, and with a less amount.

The CHAIRMAN. Then you are in favor of wiping out the statutory roll and substituting a lump-sum appropriation?

Dr. ALSBERG. With reference to this matter of losing men, might I make just one more point, and that is when you lose an investigator who has been at work on a problem which Congress wishes to have studied you lose more than you do when you lose an executive or a clerk, because you lose what he has got in his head, and he can not ever put that down on paper for his successor to use. You lose the fruits of several years of his work, and no system you can devise can prevent it. He goes off and you have to get another man who has to familiarize himself with the work—to train himself in that work. You are apt to lose at least a year and sometimes two or three years' salary.

The CHAIRMAN. Just one word. The fact is practically everybody in the Government service is underpaid as compared with the salaries paid on the outside. Is not that a fact?

Dr. ALSBERG. Yes, Mr. Chairman; but you do not have to pay, in the Government service, the salaries you pay on the outside. There are other attractions.

The CHAIRMAN. I think it is quite generally agreed that the employees of the Government are underpaid. The question is, Would you make a permanent increase or would you authorize a bonus? Would the bonus be the proper way, in an emergency?

Dr. ALSBERG. I have not given that feature of it very much thought, Mr. Chairman. Of course, that is a way to play safe, because, should living conditions come back to normal, it would be a very much simpler matter to wipe out the bonuses than to reduce or scale salaries down.

The CHAIRMAN. In your opinion, what increase should be made for scientists? The clerks would, of course, come under the same rule as clerks in the other departments, but the scientists in your department are in a class by themselves.

Dr. ALSBERG. It would be necessary for me to have an increase of somewhere in the neighborhood—I hope you won't misunderstand me—of 40 to 50 per cent, in order to be able to keep all the best

men. As a matter of fact, the best men I have lost, I could not have kept without the ability to increase their salaries. In different cases it varies from 40 to 50 per cent.

The CHAIRMAN. The fact is you can not compete in all cases?

Dr. ALSBERG. We make it a rule in the bureau and in the department not to meet an industrial salary and not to keep a man by meeting an industrial salary purely because he gets an offer from the outside. If we began doing that, we would disorganize our force, because they would all go around and angle for commercial positions.

The CHAIRMAN. Is it not a fact when new corporations are formed that they select men from the department, because of the prestige that they give the concern?

Dr. ALSBERG. That is very true.

The CHAIRMAN. Then salaries do not cut much figure, and you could not meet that kind of competition?

Dr. ALSBERG. We do not meet that kind of competition.

The CHAIRMAN. Taking the general run of things, how do the salaries compare?

Dr. ALSBERG. I think we would have to increase the salaries so as not to lose our men too fast, as I said, from 30 to 50 per cent. We expect that the Bureau of Chemistry will be used as a training school in part and we do not regret it when a man, who has been with us for five or six years, goes out as chief chemist of a manufacturing concern with whom we have had a great difficulty under the food and drugs acts, because we know the moment he gets in there and takes charge our difficulties with that concern are ended; they cease to violate the law and we have accomplished more than we could if that man stayed in the bureau and prosecuted those people.

The CHAIRMAN. The Department of Agriculture is really a school?

Dr. ALSBERG. The department is a school; but, Mr. Chairman, we do not want to lose our second string men and at the present time we are losing them. As far as losing our skilled men is concerned, we expect to lose them, but we always want enough of the understudies on hand to work in their places; and at present we can not do it. We have lost one man this year, for instance, at about three times the Government salary. Now, we do not expect to keep such a man; but we do not want to keep his understudy and we lost him, too.

There is another point that I wish to bring to your attention, and that is the great need we have in the Bureau of Chemistry for more space. I suppose everybody has made that plea. We moved into our building in 1909, and at the present time have practically very little more space to-day than we had then. We are terrifically cramped for working space in the bureau.

The CHAIRMAN. That is a matter that is determined by the Secretary. We make a lump-sum appropriation for that.

Dr. ALSBERG. I know that, but I wanted to raise the point for your consideration when later you consider the matter of rent.

The CHAIRMAN. Yes.

Dr. ALSBERG. With reference to the total appropriation for the bureau we ask for a net increase of \$32,900, which is only 3 per cent

increase of our total appropriation. This is asked for, because it is the smallest sum we can figure which will enable us to carry on the work on its present basis efficiently. In addition to that, there is an item which interests the bureau.

The CHAIRMAN. Do you care to comment on the statutory roll further?

Dr. ALSBERG. I have only one comment to make on the statutory roll, Mr. Chairman, and that deals with the inspectors.

The CHAIRMAN. Then take up item 16 on page 141 first.

Dr. ALSBERG. You mean these two multigraph operators, at \$1,000 each.

The CHAIRMAN. Yes.

Dr. ALSBERG. That is simply a change in designation and not a new position or a change in salary. The object of the change of designation is to give us greater latitude in the nature or the qualifications of the person with whom we fill the position.

The CHAIRMAN. Item 28, page 142, is the next, "one assistant, \$1,600, changed to 1 clerk, class 3."

Dr. ALSBERG. This is not an increase and not essentially a change. This particular employee has qualified as a food and drug inspector and has been appointed to a then existing vacancy on the food and drug inspection force, and we want to fill the position with a purely clerical employee. It is not a new position; it is a change in designation.

May I comment on items 23, 24, 25, 26, and 27, page 142?

The CHAIRMAN. Very well. Item 26 is for 11 food and drug inspectors.

Dr. ALSBERG. It is the whole food and drug inspection group from 23 to 27, inclusive.

The CHAIRMAN. This will not appear in the bill. I want the hearings to show exactly what we are discussing, so if we refer to the title of that item we may know. Item 23 is for 13 food and drug inspectors, at \$2,000 each.

Mr. HUTCHINSON. Are these food and drug inspectors chemists?

Dr. ALSBERG. Not as a rule.

Mr. HUTCHINSON. Then you do not have any chemists at all on the statutory roll?

Dr. ALSBERG. There are no chemists, as such, on the statutory roll, excepting myself. There are a few chemists, a few men who happen to be chemists, among the drug inspectors. Occasionally a man who is a chemist will ask to be transferred to fill a vacancy on the inspection force and if he is competent the transfer is made, but his status is not that of a chemist. The fact that he is a chemist is an accident.

Mr. HUTCHINSON. Following that up, item 66 for a \$50,000 appropriation is a lump-sum appropriation, is it not?

Dr. ALSBERG. Yes, sir.

Mr. HUTCHINSON. You can pay those chemists any salary you want?

Dr. ALSBERG. Yes, sir; within the limit of \$4,500 fixed by law, with the consent of the Civil Service Commission. The only technical employee on the whole bureau roll whose position is statutory is mine.

Mr. HUTCHINSON. That is what I wanted to get at.

Dr. ALSBERG. The points I want to comment on here are the 13 food and drug inspectors, at \$2,000 each, in item 23; item 24, 13 food and drug inspectors, at \$1,800 each; item 25, 1 food and drug inspector, \$1,620; item 26, 11 food and drug inspectors, at \$1,600 each; item 27, 10 food and drug inspectors, at \$1,400 each; all on page 142 of the estimates. The comment I wish to submit is this:

The difficulty we have had in securing and retaining competent inspectors at the scale of salaries now paid has been pointed out. To aid us somewhat in meeting the difficulties we were having in this respect the Secretary of Agriculture has given permission to me to recommend to you that the following change be made in the statutory roll: Page 142, item 23, change from 13 food and drug inspectors, at \$2,000 each, to 20 food and drug inspectors, at \$2,000 each. Under item 27 eliminate 10 food and drug inspectors, at \$1,400 each. The effect of these two changes will be to increase the entrance salary for food and drug inspectors from \$1,400 to \$1,600 and to decrease the number of inspectors from 53 to 50, and will make the total appropriation for the salaries of food and drug inspectors exactly what it is in the present bill.

In my opinion we can secure a higher degree of efficiency in the inspection work in the enforcement of the food and drugs act by having a smaller number of higher grade inspectors than with the slightly larger number of lower-grade men. We can unquestionably secure a higher average of ability with an entrance salary of \$1,600 than with an entrance salary of \$1,400. As pointed out to you previously, it is impracticable to secure men of the caliber needed for inspectors at an entrance salary of \$1,400. This change not only will not increase the total amount for the salaries of food and drug inspectors, but will effect a small saving in that the traveling expenses for 50 inspectors will be less than would be the traveling expenses for 53 inspectors. It is our intention, if this change is approved, to keep the number of inspectors at 50, and not to appoint any inspectors on the lump-fund rolls. The effect of this change will, therefore, be to give us a higher grade of ability among our inspectors without additional total expense to the Government.

It is our intention, if this change is approved, to appoint the new inspectors as vacancies occur at the entrance salary of \$1,600, and to promote the more experienced efficient men to the \$2,000 positions if there are remaining in the service a sufficient number of the experienced inspectors who have demonstrated a degree of efficiency that will entitle them to these promotions. In case there should not be in the service at that time a sufficient number of experienced inspectors with the degree of efficiency which justifies promotions, some of the higher positions will be filled by original appointment, providing the bureau can obtain men of qualifications sufficient to justify paying these salaries.

I urgently recommend that these changes in the statutory roll be made in the interest of the efficiency enforcement of the food and drugs act.

The CHAIRMAN. You drop 10 food and drug inspectors at \$1,400 and add 7 in item 23 at \$2,000?

Dr. ALSBERG. Three go out entirely. We change 23.

The CHAIRMAN. You really drop only three?

Dr. ALSBERG. It reduces the force by three inspectors.

In other words, we prefer to have 50 men at better salaries than 53 men such as we can get. As a matter of fact, at the present time, of the 10 food and drug inspectors' places at \$1,400 apiece, about 5 are vacant. We have not been able to fill them, and, if I may be permitted, I will read a letter in that connection which is one of several we have received. It is a letter addressed to the chief clerk of the bureau by a man to whom the position had been offered and who was on the civil-service register. [Reading:]

Seymour, Ind., November 17, 1919.

BUREAU OF CHEMISTRY,
Washington, D. C.
Attention of Mr. S. A. Postle.

DEAR SIR: I have been traveling for the above firm for the past few weeks and have not been able to answer your letter concerning position as drug inspector. How any man with good sense would consent to take a job doing anything and doing it anywhere for \$1,400 is beyond me, when the railroads and coal mines offer such excellent opportunities.

Seriously, I couldn't possibly live on such a wage.

Very truly, yours.

M. E. JENNINGS,
523 North Walnut Street.

P. S. You met me yourself several times last winter. Did I look like a \$1,400 man to you?

The CHAIRMAN. The total salary "would be \$1,640?

Mr. McKINLEY. You mean with the \$240 bonus.

Mr. HARRISON. They do not get the bonus when they first come into the service; we can not promise it to them.

Dr. ALSBERG. Not until they have been with us for some time.

The CHAIRMAN. How long?

Dr. ALSBERG. Six or eight months.

Mr. HARRISON. It has to be a month or more.

Dr. ALSBERG. Usually they get it after six months.

Mr. HARRISON. We do not promise the bonus to a new employee. We simply ask him if he will accept appointment at the basic salary for the particular position in view. The question of giving him the bonus is determined later on the basis of service actually rendered.

The CHAIRMAN. If they are certified, it is \$1,640?

Mr. HARRISON. We take the view that certification can not be made in the case of new appointees until they have rendered at least one month's satisfactory service.

The CHAIRMAN. If they don't take the bonus into consideration, we might as well wipe it out.

Dr. ALSBERG. When the places are offered to men they are told that there is a bonus that they may get any time within six months. Usually it is several months before they get the bonus.

The CHAIRMAN. If a man makes good, is he entitled to the bonus?

Dr. ALSBERG. They usually get it after several months. We can not promise it to them.

Mr. HUTCHINSON. Is it not in the law that they are to get the bonus?

Mr. HARRISON. The law says that employees who have entered the service since June 30, 1918, or who have been promoted by more than \$200 since that date, can receive bonus only after certification

by the head of the department that their ability and qualifications are such as to justify it. An employee has to render service before we can determine what his ability and qualifications are. The bonus is not a matter of right in such cases.

Dr. ALSBERG. Usually they are appointed under civil service for a probationary period. We would not know for six months whether we want to keep the employee or not. We could not legally give that man his bonus until we had determined that he was efficient enough to have a permanent appointment. So in cases where we are not certain until the end of the probationary period he does not get his bonus until after six months.

The CHAIRMAN. Do all of them have to wait six months?

Dr. ALSBERG. In the Bureau of Chemistry it runs from three to six months.

Mr. HARRISON. In no case in the department has the bonus been granted to an employee who has served less than one month. All new appointees are required to serve at least a month before they are considered for the bonus, and the period will vary from one month to a year.

The CHAIRMAN. The whole matter is left to the discretion of the Secretary?

Mr. HARRISON. Only in the case of employees who have entered the service since June 30, 1918, or who have not received a promotion of more than \$200 since that time.

Dr. ALSBERG. In the case of the inspectors, I do not feel myself justified in passing on their qualifications until they have served six months, and, therefore, I do not feel justified in recommending the bonus until I am sure they are good enough to keep. It takes us about six months.

I think that covers all of the statutory roll.

The CHAIRMAN. The next item is No. 64, on page 144, the introductory clause for general expenses. Is there any change in that?

Dr. ALSBERG. No.

The CHAIRMAN. Do you care to make any comment on it?

Dr. ALSBERG. I would prefer to comment on the individual items. This is just the general authority for the bureau's work. Item 65 is "for conducting the investigations contemplated by the act of May 15, 1862, relating to the application of chemistry to agriculture." There is no change requested in that, Mr. Chairman.

The CHAIRMAN. What is the character of that work?

Dr. ALSBERG. The character of the work is in the first place carrying on the chemical side of agriculture investigations partly in collaboration with other bureaus carrying on the chemical work; for instance, for the grain breeding and selection work of the Bureau of Plant Industry. We do the chemical end of that work and a great deal of similar work of that kind. At the same time it involves the carrying on of physiological investigations in cooperation with the Bureau of Plant Industry.

The CHAIRMAN. Is it done in cooperation with the other bureaus of your department?

Dr. ALSBERG. Yes. We do the chemical side of the agricultural work for the Bureau of Plant Industry, chemical work on insecticide, fungicide, and all that sort of thing.

The CHAIRMAN. How about item 66, "for collaboration with other departments of the Government desiring chemical investigations," and so on.

Dr. ALSBERG. In item 66 an increase is requested. The reason for that request grows in part out of the war. During the war the various departments of the Government outside of the Department of Agriculture, particularly the Army and Navy, though, of course, also the Department of Justice and the Post Office Department, made tremendous demands on the Bureau of Chemistry for analytical and for other laboratory work. We spent probably on this kind of work for the War Department and for the Navy Department and the Department of Justice upward of \$100,000 a year during the war. Of course, it had to come out of other funds and we felt justified in doing it owing to the emergency.

Mr. ANDERSON. Did those departments furnish you with any additional funds?

Dr. ALSBERG. They did not furnish us with any additional funds. They did furnish us with some help. They have carried the salary, I should say, of perhaps a dozen chemists, something on that order. I can not give the exact number.

Mr. JACOWAY. Did they furnish any additional equipment?

Dr. ALSBERG. No additional equipment. Of course, the work has become less, but during the last year we analyzed a total of more than 20,000 samples for other departments than the Department of Agriculture. Of course, this is like all cost accounting; you can vary the figure according to how you distribute your overhead. I estimate that it costs us approximately \$89,000, or an average cost of \$4.28, which we believe is a very low figure for that type of work.

Mr. ANDERSON. Do these analyses relate to articles produced by the other departments, or are they investigational in character?

Dr. ALSBERG. They are not investigational in character, except in so much as some kind of investigation may be necessary to give an intelligent opinion for the other department. They are practically all Army and Navy matters, supplies, contracts, and specifications. For the Department of Justice and for the Post Office Department they are of a different nature. For the Department of Justice they may be almost anything from testing for poison in a man's stomach, done for a local United States attorney, to determining alcohol in some beverage that the United States attorney wants information about.

Mr. ANDERSON. I understand, for instance, that the Navy Department has an experimental bureau of its own at which it tests the various articles subject to test for the use of the department. I think the same thing is true of the Army. I am sure that the Commissioner of Internal Revenue has a force of chemists.

Dr. ALSBERG. That is true, Mr. Anderson. Our work in these lines has been largely limited to food and drug analysis, to physiological work, except some special work that we have done for the Department of Justice. Our work for the Army and Navy has been limited to foods and drugs and leather, which we happen to be working on, and one or two other things. The Army and Navy have their laboratories, which do not do much of that particular

kind of work. Also very little of this work is done in the neighborhood where their laboratories exist. We have 18 laboratories scattered from Seattle and San Francisco to Boston, and it is economical for the depot quartermasters or the navy-yard commandants in the same town where we have a laboratory to telephone, "We are going to send you such and such a sample. Please analyze it and report." They can have it done on the spot and get the report telephonically, followed by a confirmation. They prefer this to sending it to Washington or the Brooklyn Navy Yard or the Picatinny Arsenal, or wherever the Army or Navy laboratory may be.

Mr. ANDERSON. In a case of that kind, is the cost of making the analysis paid out of this appropriation or does it come out of the ordinary appropriations for those departments? In other words, are not these men working on salaries which are paid anyhow? How do you account for investigations made in that way?

Dr. ALSBERG. So far as this appropriation has been available it has been allotted to this work. You see, we have in our own small way our own budget system. On the 1st of June every man in charge of a laboratory submits to me an estimate of what he is going to need for the conduct of the laboratory or a special line of work during the fiscal year beginning the following July. On the 15th of June I give him his budget. I give him a statement: "You have to the credit of your laboratory so much on the books of the bureau." In making these allotments this fund is prorated so far as it lasts. Of course, during the last two years it has not been enough to cover the amount of work required. After consultation with the local people as to their requirements during the coming year we prorate the available funds. That, in the main, is how this fund is divided.

Mr. MCKINLEY. What chemical work is done by the Bureau of Standards?

Dr. ALSBERG. The Bureau of Standards does a lot of work of the same type on products other than food and drugs.

Mr. MCKINLEY. Do you do any work except on food and drugs?

Dr. ALSBERG. Occasionally we do other pieces of work. Do you mean for other departments?

Mr. MCKINLEY. Yes.

Dr. ALSBERG. We do work on food and drugs and leather, and occasionally test for waterproofing and mildew proofing of tentage.

Mr. MCKINLEY. Why should you instead of the Bureau of Standards, do it for leather?

Dr. ALSBERG. There is no reason why we should do the testing of it.

Mr. MCKINLEY. Do you do the testing?

Dr. ALSBERG. A little; not much. They do most of the testing.

Mr. TINCHER. You say you carry that under another item. You mean there is another appropriation for testing leather?

Dr. ALSBERG. Not for the testing of the leather, but for the investigation of the methods of producing leather.

Mr. TINCHER. Is not that included in this request for \$36,000?

Dr. ALSBERG. No. This covers general chemical tests, especially foods and drugs for other departments.

Mr. TINCHER. You are asking for \$36,000 additional appropriation. I understood you to say one reason for that is that you had a lot of extra work during the war. The war is practically over. Just what do you intend to do with the \$36,000?

Dr. ALSBERG. With that \$36,000 we expect to carry on the analytical work for the War Department, the Navy Department, the Department of Justice, the Post Office Department, the Panama Canal Commission. The Interior Department to a less extent is also asking us to do some of it. The bulk of the work consists of the analyses of food and drugs. Probably 96 per cent of it consists of the analysis of food and drugs. We get occasional requests to test samples of leather. We get from the United States attorneys or post-office inspectors occasional requests to analyze anything that happens to come up in their work just because we have a local laboratory, which is usually in the Federal building where the United States attorney is. He knows our man. He may know him well enough to call him by his first name and say, "Jim, I wish you would examine this for me because I may have to bring the matter before the Federal grand jury." He would prefer to do that to sending it in to Washington or anywhere else.

Mr. MCKINLEY. What percentage of your work is done here in Washington?

Dr. ALSBERG. Very little; almost none of it. The bulk of it is done in such places as St. Louis, San Francisco, Seattle, New York, and Boston. I should not think that more than 5 per cent of it, if that much, was done here.

Mr. MCKINLEY. Then that would be your answer as to why it is done by you instead of the Bureau of Standards—because most of the work is done at the local office.

Dr. ALSBERG. We do not overlap the Bureau of Standards. They keep off of food and drugs. The only place we overlap is occasionally an analysis for the sake of convenience when the local man wants it done locally. It is the same thing with the Bureau of Internal Revenue. Mr. Anderson is quite right; they have their own laboratory people to do that particular work, fully as competent as we are, but when the United States attorney at such a place as Seattle, or the collector of internal revenue, or the local prohibition enforcement agent, wants alcohol determined, let us say, in a sample that he has taken from some bootlegger, he would much sooner go into our laboratory, where he knows our man personally, than to express the bottle to Washington or to New York and have it done here. It is more economical for the Government in the long run to have it done that way.

Mr. JACOWAY. Will the prohibition laws which have been passed increase the work of this department very much, if any?

Dr. ALSBERG. No; they will not.

Mr. ANDERSON. The Bureau of Internal Revenue, I assume, will have laboratories established all over the country, so that it strikes me that that feature of it, if it is in consequence of that, can very well be eliminated.

Dr. ALSBERG. Of course, if they have laboratories all over the country, there will be no call for us to do any of that work. Like the leather work, this is a very small part of the work.

Mr. McLAUGHLIN of Michigan. Will you speak of the saving effected if this work be done in one department rather than several?

Dr. ALSBERG. Yes, sir.

Mr. McLAUGHLIN of Michigan. What lines of work have been or are likely to be duplicated? Tell us what the other departments are doing under that item 66.

Dr. ALSBERG. The only point I had in mind was this, that as far as I can make out the War Department at the present time is well content with the service that the Bureau of Chemistry is rendering the various depot quartermasters in analyzing their goods on contracts, foods, drugs, and medicines. If we discontinue that service they will have to establish their own laboratories. The depot quartermaster in St. Louis will have to have a chemical laboratory for his work. At the present time he is doing it in our laboratory in St. Louis, and does not want to establish a laboratory of his own, as he is satisfied with the service.

Mr. McLAUGHLIN of Michigan. There is an understanding between you that the work will not be done by them if it is done by you?

Dr. ALSBERG. Of course we can not do the work if they do not send us samples. At present they are sending us samples.

The CHAIRMAN. As a matter of economy, should not all the work on chemistry be done in the Bureau of Chemistry rather than for each department or bureau to set up a separate bureau of chemistry? When it comes to standards, that should be done by the Bureau of Standards. Would not that be the proper solution of the matter?

Dr. ALSBERG. Of course, it would be in my personal interest to say yes, but I can not agree that that is the proper solution.

The CHAIRMAN. You have 18 laboratories scattered over the country. Why should other departments build more?

Dr. ALSBERG. I am not talking about the routine work.

The CHAIRMAN. In the matter of economy. Where can we save money?

Dr. ALSBERG. Money could be saved in that way.

The CHAIRMAN. With just as efficient service?

Dr. ALSBERG. For everything except research in chemistry.

The CHAIRMAN. It is natural to assume that you have the highest skilled chemists.

Dr. ALSBERG. But my point is this: If the Bureau of Standards is carrying on a research on the strength of structural steel, it will be necessary for it as a part of the research to analyze that steel. It would not be fair to have the man who is doing the testing of that structural steel to have to send that steel to the Bureau of Chemistry for analysis. It would not be efficient to have analytical work of this kind concentrated in the manner you suggest.

The CHAIRMAN. Whenever your activities are extended to testing, then you are encroaching upon the Bureau of Standards, and whenever their activities are extended to chemistry, they are encroaching upon the Bureau of Chemistry.

Dr. ALSBERG. That is true except so far as foods and drugs are concerned. We can not enforce the food and drugs act except through the testing of foods and drugs. We do very little testing of any kind except the testing of foods and drugs, but the Bureau of Standards does not test foods and drugs.

The CHAIRMAN. We have only one Bureau of Standards and only one Bureau of Chemistry. It seems to me that the proper thing would be to refer everything to the respective bureaus, except in certain instances.

Dr. ALSBERG. I should be well satisfied if that could be done.

The CHAIRMAN. I know what is being said about duplication of work and one department encroaching upon the prerogatives of another. We want to do away with duplication if it is possible to do it.

Mr. JACOWAY. You stated that there is little duplication of work in your department.

Dr. ALSBERG. With the Bureau of Standards?

Mr. JACOWAY. In this particular department of the work.

Dr. ALSBERG. I do not think that is being done by anybody else anywhere in the Government service.

The CHAIRMAN. Why should other bureaus or departments set up a division of chemistry when there is one Bureau of Chemistry in the Department of Agriculture?

Dr. ALSBERG. As far as this item is concerned, Mr. Chairman, you are absolutely right in that statement, and the object of that particular item is to have the Bureau of Chemistry do just that kind of work and make it unnecessary for any other department to duplicate it.

The CHAIRMAN. I asked the question because there is a great deal said about duplication of work. No one is particularly to blame, but it is for somebody to work out a solution. Are you through with that item?

Dr. ALSBERG. Yes.

Mr. HARRISON. Mr. Chairman, Secretary Glass has written you a letter, concurred in by Secretary Houston, suggesting that a provision be inserted in the Agricultural appropriation bill for 1921, authorizing the transfer from the Treasury Department to the Department of Agriculture of the administration of the tea inspection act. The matter which originated with the Treasury Department and Mr. George F. Mitchell, supervising tea examiner of that department, who is here this morning, will be glad to explain to the committee the reasons for the transfer, if it is agreeable to you.

The CHAIRMAN. It is agreeable to the committee if it is agreeable to you, Doctor.

Dr. ALSBERG. Yes.

Mr. HARRISON. I think it would be desirable to insert the correspondence in the record, as it states the situation fully.

The CHAIRMAN. Yes; it will be incorporated in the record.

(The letters referred to follow:)

DEPARTMENT OF AGRICULTURE.
Washington, November 15, 1919.

The SECRETARY OF THE TREASURY.

SIR: Consideration has been given to your letter of October 6, 1919, and inclosures, relative to the proposed transfer of the administration of an act entitled "An act to prevent the importation of impure and unwholesome tea," approved March 2, 1897 (29 Stat. 604), as amended by the act of May 16, 1906 (35 Stat. 163), from the Treasury Department to the Department of Agriculture.

In reply I have the honor to state that the department concurs with you both in respect to the proposed drafts of the bill submitted by your department, and the letters transmitting same to the Hon. Asle J. Gronna, chairman Committee on Agriculture and Forestry, of the Senate, and the Hon. Gilbert E. Haugen, chairman Committee on Agriculture, House of Representatives.

The inclosures accompanying your letter are herewith returned.

Respectfully,

D. F. HOUSTON, *Secretary.*

TREASURY DEPARTMENT,
Washington, October 6, 1919.

THE SECRETARY OF AGRICULTURE.

SIR: I have the honor to refer to the correspondence conducted during the year 1914, especially your letter to this department dated February 25, 1914, relative to transferring the administration of the act of March 2, 1897 (29 Stat., 604), as amended by the act of May 6, 1918 (35 Stat., 163) from the Treasury Department in your department. In this letter your department submitted a draft of a provision based on a memorandum from the supervising tea examiner of this department for insertion in the agricultural appropriation bill transferring the administration of the tea act to your department, copy of which I inclose with suggestions from this department. All words therein which have been stricken out are inclosed in parenthesis with lines drawn through them, and all new words inserted are underscored. By referring to sections 4 and 6 of the act it will be seen that the law already states that the bonds are to be approved by the collector at the port of entry.

The changes made in the last paragraph of the provision to transfer the law simply brings the provision up to date and allows for carrying the office of supervising tea examiner on the lump-sum roll.

The office of supervising tea examiner is now a statutory position carried under the Customs Division in the legislative bill. But this department will request Congress to drop this statutory position when the transfer of the tea act has been consummated.

I am inclosing letters written to the chairman of the Committee on Agriculture and Forestry of the Senate and the chairman of the Committee on Agriculture of the House of Representatives signed by me and for concurrence in by you, requesting that the transfer of the tea act be made and giving reasons for same.

Respectfully,

CARTER GLASS, *Secretary.*

TREASURY DEPARTMENT,
OFFICE OF THE SECRETARY,
Washington, September 29, 1919.

HON. GILBERT N. HAUGEN,
*Chairman Committee on Agriculture,
House of Representatives.*

MY DEAR CONGRESSMAN: Inclosed you will find a draft of a provision prepared jointly by the Agricultural Department and my department which I would recommend be inserted in the agricultural appropriation bill for the fiscal year 1921. This provision provides for the transfer of the administration of the act of March 2, 1897 (29 Stat., 604), as amended by the act of May 6, 1918 (35 Stat., 163), from the Treasury Department to the Agricultural Department. No changes are made in the act itself except those of an administrative nature.

This act prohibits the importation of any merchandise, as tea, which is inferior in purity, quality, and fitness for consumption, to standards to be fixed and established annually by the Secretary of the Treasury, and provides that such merchandise finally determined to be inferior in purity, quality, or fitness for consumption to such standard shall be exported, provides for a physical standard of quality as well as purity. The reason for this is because tea must have a standard of quality if it is to be successfully guarded as a food product, as it is possible to have an absolutely pure tea and yet it might be unfit for consumption. The commercial teas are made from the tender leaves of the tea plant. These young leaves contain the stimulating alkaloid caffeine and a

complex constituent which gives the commercial teas their value and flavor. It has been determined that the lower leaves of the tea bush not only have practically no stimulating value but increase materially in tannin, the injurious and deleterious constituent of tea, so that if we did not establish a standard of quality as well as purity it would be possible to import tea made from these lower leaves which, while pure, would be absolutely devoid of any real tea flavor and which at the same time would be so strong in tannin as to be unfit for consumption.

In other words, although all tea is made from the leaves of the tea plant, all tea leaves that are made into tea can not be considered as commercial tea, and to prevent the United States from being the "dumping ground" that it was before the present law was enacted, Congress very wisely passed the present tea act which requires all teas entering the country to be measured by the physical standard that represents the minimum of quality. This law, besides protecting the consumer against spurious adulterations and inferior goods which lack the requisite quality to make them of value as a beverage, also protects the merchant against the flood of worthless trash that would destroy his market.

In viewing the foregoing paragraphs and after studying the history of acts of this kind which I will review in the following paragraphs, I am convinced that your committee will desire to secure legislation which will effect the transfer of the administration of this act to the Agricultural Department, where all acts of this kind are now administered and where I believe this one rightfully belongs.

As nearly as I can determine, the first legislation conditioning the right of importation upon purity, quality, and wholesomeness of merchandise is contained in the act of Congress approved June 26, 1848 (U. S. Stat., vol. 9, p. 237), entitled "An act to prevent the importation of adulterated and spurious drugs and medicines." By the terms of this act the customs service of this department is charged with its enforcement.

Probably the next legislation of this kind was the act of Congress approved March 2, 1883 (U. S. Stat., vol. 22, p. 451), entitled "An act to prevent the importation of adulterated and spurious teas." The customs service of this department was also charged with the administration and enforcement of the provisions of this act.

The next legislation directed to the prevention of the importation of impure, adulterated, and unwholesome merchandise is contained in the act of Congress approved August 30, 1890 (U. S. Stat., vol. 26, p. 414), entitled "An act providing for the inspection of meats for exportation, prohibiting the importation of adulterated articles of food and drink, and authorizing the President to make proclamation in certain cases, and for other purposes." Under the terms of this statute, the Secretary of Agriculture is charged with its enforcement so far as it relates to the exportation of meats, and the Secretary of the Treasury is charged with its enforcement so far as it relates to the importation of adulterated articles of food and drink.

The next legislation on the subject is contained in the act of March 2, 1897, *supra*, which took the place of the tea act of 1883, above referred to, and which was continued under the jurisdiction of the Treasury Department, and the next is the Agricultural appropriation act of March 1, 1889 (U. S. Stat., vol. 30, ch. 325, p. 951). This latter act authorizes the Secretary of Agriculture to investigate the adulteration of foods, drugs, and liquors and prohibits the importation of such articles when found to be dangerous to the health of the people of the United States.

The last-mentioned act seems to mark a change in the policy of Congress with respect to the enforcement of legislation directed to the prevention of the importation of spurious, adulterated, impure, unwholesome, and misbranded foods, drugs, and liquors, for in all such legislation prior to this act the Secretary of the Treasury is charged with its enforcement, whereas in the said act the Secretary of Agriculture is given jurisdiction.

The act of August 30, 1890, was followed by the acts of May 25, 1900 (U. S. Stat., vol. 31, ch. 555, p. 196); March 2, 1901 (U. S. Stat., vol. 31, ch. 805, p. 960); June 3, 1902 (U. S. Stat., vol. 32, ch. 985, p. 296); March 3, 1903 (U. S. Stat., vol. 32, ch. 1008, p. 1157); April 23, 1904 (U. S. Stat., vol. 33, ch. 1486, p. 238); March 3, 1905 (U. S. Stat., vol. 33, ch. 1405, p. 874); June 30, 1906 (U. S. Stat., vol. 34, p. 686).

The successive statutes gradually broaden the scope of governmental control and supervision over the importation of foods, drugs, and liquors, and in each of them the Secretary of Agriculture is given jurisdiction to determine the purity, quality, and wholesomeness of such articles offered for importation, and whether they shall be permitted to enter into consumption in the United States.

The situation is that under existing statutes the Department of Agriculture has jurisdiction to determine the fitness for human consumption and admissibility of all foods, drugs, and liquors offered for importation into the United States, with the single exception of tea, jurisdiction over which remains partly in this department, under the act of March 2, 1897, and partly in the Department of Agriculture, under the food and drugs act of June 30, 1906 (28 Op. A. G. 166). In this opinion the Attorney General shows that no repugnancy exists between the special tea-inspection act of March 2, 1897 (29 Stat., 604) and the general food and drugs act of June 30, 1906 (34 Stat., 768), preventing them from standing together, and that an importation of tea is, therefore, subject to both acts in that it must equal the standards of quality and purity established by the Secretary of the Treasury under the tea-inspection act and is also subject to the provisions of the food and drugs act regarding adulteration, labeling, misbranding, and guaranty.

In the opinion of this department both of these acts are necessary to safeguard the public in the matter of tea, and, while the one can not be substituted for the other, as they deal with tea in different particulars, at the same time, if the administration of the tea law were placed under the Department of Agriculture the work could be coordinated in the department in which this class of work properly belongs.

If your committee has any doubts as to the advisability of this proposed course or desires information, this department will be glad to have a representative familiar with the matter appear before the committee.

A similar letter has been addressed to the chairman of the Committee on Agriculture and Forestry of the Senate.

Respectfully,

CARTER GLASS,
Secretary of the Treasury.

I concur.

D. F. HOUSTON,
Secretary of Agriculture.

The Secretary of Agriculture shall, from and after the taking effect of this act, execute and perform all the powers and duties conferred on the Secretary of the Treasury by the act approved March 2, 1897 (29 Stat. L., p. 604), entitled "An act to prevent the importation of impure and unwholesome tea," as amended by the act approved May 16, 1908 (35 Stat. L., p. 163), entitled "An act to amend an act entitled 'An act to prevent the importation of impure and unwholesome tea,' approved March 2, 1897": *Provided*, That the bonds given to the United States as security in pursuance of section 1, as amended, shall be subject to the approval only of the collector of customs at the port of entry; that in place of the board of United States general appraisers provided for by section 6 of the act, there shall be designated by the Secretary of Agriculture three employees of the Department of Agriculture to serve as the United States Board of Tea Appeals with all the powers and duties conferred by the act on the board of United States general appraisers. There is hereby appropriated, out of any money in the Treasury not otherwise appropriated, the sum of \$45,000 for carrying into effect the provisions of the aforesaid act until the end of the fiscal year ending June 30, 1921, including payment of compensation and expenses of the members of the board appointed under section 2 of the act and all other necessary officers and employees.

STATEMENT OF MR. GEORGE F. MITCHELL, SUPERVISING TEA EXAMINER, TREASURY DEPARTMENT.

The CHAIRMAN. You may proceed, Mr. Mitchell.

Mr. MITCHELL. Several years ago Secretary McAdoo suggested to the Agricultural Department that the tea-inspection act, which deals entirely with the testing of imported teas, or teas entered at

the ports for consumption, for purity, quality, and fitness for consumption, be transferred to the Agricultural Department, as it has nothing to do with revenues. There is no duty on tea at the present time. This matter was postponed, due to the fact that at the time there was pending in the courts a case testing out whether a certain test that we were using was legal or not. The Secretary of the Treasury asked the Secretary of Agriculture to postpone it when that case came up. The case has been settled by the Supreme Court, and now the Secretary of the Treasury, Mr. Glass, has asked the Secretary of Agriculture if his department was willing to take over this work, which is more in line with the functions of that department. It is more in line with the pure food law, and the Secretary of Agriculture has concurred in the letter to this committee. A similar letter has also been addressed to the Committee on Agriculture of the Senate.

Mr. ANDERSON. As I understood this tea proposition, the testing of tea has no relation to any rate of duty?

Mr. MITCHELL. None whatsoever.

Mr. ANDERSON. If the tea does not come up to the standard, which I think a commission was set up to fix, it is simply refused entry?

Mr. MITCHELL. It is refused entry by the examiner, but the importer has the chance to appeal to the Board of Tea Appeals, and then, if it is finally rejected by the Board of Tea Appeals, the importer has six months in which to export the tea. If not exported within six months, then it is destroyed; it is mandatory that it shall be destroyed.

Mr. ANDERSON. It is purely a pure-food matter, with no relation to the importation of tea?

Mr. MITCHELL. It is entirely a pure-food matter, and the main point I want to bring out is that it can not be handled in the best way under the pure-food law, for the pure-food law does not regulate quality or grade. This board, under the act of 1897, annually establishes physical standards, actual tea standards, of both purity and quality. If we were to do away with this act and let it automatically drift under the pure-food law we would not be able to test for quality. The reason why tea differs from some other food products is that we have to test for quality. It is due to the fact that if the tea leaves that are made into tea are not picked from the uppermost part of the shoots—if they should happen to pick them lower down, which there is a tendency to do, because the leaves lower down are larger and have more weight—such leaves would be lacking in the tea quality and yet would be absolutely pure and be allowed to enter this country under the pure-food law; but they would not be considered commercial tea as I would consider commercial tea, or any other tea man would consider commercial tea. The procedure that we have under this act is to test all teas at seven different ports by expert examiners. These men are qualified in testing teas. The tea entering the country is drawn in comparison with the Government standard, and generally in blind, so that the examiner is not biased in any way, and if it does not equal the Government standard the tea is rejected by the examiner.

Mr. McLAUGHLIN of Michigan. What ports are they?

Mr. MITCHELL. We have examiners stationed at New York, Boston, Chicago, St. Paul, Tacoma, Wash. (which we call the Puget Sound port), San Francisco, and Honolulu. The way we divide the districts is simply automatic. If the tea should come into a port where there is no qualified tea examiner, then he sends it to the nearest port where there is a qualified tea examiner, so that the United States is divided automatically in that way into different districts.

Mr. McLAUGHLIN of Michigan. How large a force have you at each one of these places?

Mr. MITCHELL. At each of these places we have a qualified examiner, and at two of the ports these examiners have assistant examiners, and then we have at some of the other larger ports (for instance, three out of the seven), we have a clerk and messenger who tends to putting the water on the tea and things of that sort. We also have to have samplers. The average number of samplers is about one at each port. The samples are not drawn under the supervision of the Government, and teas entered for consumption are placed in a bonded warehouse and kept there by the Government under bond until our samplers go and see the sample there, and these samples drawn by the samplers are submitted to the tea examiners for testing in comparison with Government standards.

Mr. McKINLEY. Are these men under civil service?

Mr. MITCHELL. All these men are under civil service, and all except myself go on the lump-sum roll. I am on the statutory roll.

Mr. McLAUGHLIN of Michigan. In the Treasury Department?

Mr. MITCHELL. Yes, sir.

Mr. HEFLIN. What salary do you get?

Mr. MITCHELL. \$2,750 a year.

Mr. TINCHER. As I understand it, your department is in the Internal Revenue Bureau?

Mr. MITCHELL. It is in the Customs Department.

Mr. TINCHER. The reason that you should not have anything to do with this is that there is nothing chemically wrong with the tea, except if they pick the leaves too long, it is weak tea?

Mr. MITCHELL. Yes.

Mr. TINCHER. The object of having the tea taster is to get strong tea?

Mr. MITCHELL. It is weak if it is picked from the lower part of the bush and does not contain the caffeine and aromatic oils that give it flavor.

Mr. TINCHER. That would not be detrimental?

Mr. MITCHELL. Not detrimental as to quality.

Mr. TINCHER. If a man bought tea that had not been tested he would simply get weak tea and we have to have these employes at these stations so that we are able to get good strong tea?

Mr. MITCHELL. Another reason is that we also test for purity.

Mr. TINCHER. These civil service men that you have besides the inspectors, do they test them as to their tasting qualities?

Mr. MITCHELL. Yes, sir; we do. We hold an examination from time to time, and we select samples that are very near the Government standard or equal to or better than the Government standard; and we actually have the applicant go through the examina-

tion, and he also has to be able to tell the different districts in the country that the tea comes from, so that he can tell what standard to use in the testing of the teas.

Mr. MCKINLEY. Is it not true that every big importing house has a tea taster?

Mr. MITCHELL. A big importing house has a tea taster.

Mr. HEFLIN. These tasters use the test to get the best quality of tea?

Mr. MITCHELL. To get the quality of good commercial tea.

Mr. HEFLIN. And but for that we would get low-grade tea?

Mr. MITCHELL. Such a low-grade tea would be absolutely trash and would not be what is known as commercial tea. Then we also test for purity. I do not think there is any important food product that is more subject to sophistication than tea. It has been in the past. They used a lot of coloring matter for tea, to make 20 per cent tea look like 40 per cent tea. That also comes under this law.

Mr. HEFLIN. You detect that and call attention to it?

Mr. MITCHELL. We not only call attention to it, but we reject the tea and have it sent outside the country. We have not had any rejects in the past six months.

Mr. HEFLIN. You protect the American people from that weak tea?

Mr. MITCHELL. This tea inspection is similar to the milk inspection in certain cities, which requires that milk contain a definite per cent of butter fat. That milk may be absolutely pure and some butter fat might be taken out unless you had these laws against the reduction of the butter fat. It is exactly the same way with tea. It is a little different from other food products. It differs from coffee; no matter what coffee bean you have you get everything in that coffee bean. It might be grown at a low altitude, it might be poor coffee, but you get everything in that coffee bean. That is not true of tea; you must have the tender leaves of the plant in order to make a good commercial tea.

Mr. McLAUGHLIN of Michigan. Do you serve for examining coffee, too?

Mr. MITCHELL. No, sir; coffee comes under the pure-food law.

Mr. McLAUGHLIN of Michigan. In this service are you employing anybody in foreign countries from which the tea comes?

Mr. MITCHELL. No, sir; we do not. The department sent me on a trip to foreign countries, but that was the only time we had anything to do with foreign countries. That was simply for the purpose of studying methods.

Mr. McLAUGHLIN of Michigan. Do you know how many have been employed in the service altogether in this country?

Mr. MITCHELL. At the present time?

Mr. McLAUGHLIN of Michigan. Yes.

Mr. MITCHELL. I can tell you roughly. We have seven examiners and the supervising tea examiner, making eight; two assistant examiners; we have about three clerks and about nine samplers.

Mr. McLAUGHLIN of Michigan. How much money has been devoted to this work in any year recently?

The CHAIRMAN. You are asking for \$45,000. Is that the amount previously carried?

Mr. MITCHELL. I was going to explain that. The lowest actual amount that would be expended in the transfer, I estimate, would be

\$40,716.30. The amount that I have added on is the amount that I estimate would be necessary in making the transfer.

The CHAIRMAN. It would cost \$5,000 to make the transfer? You are asking for \$45,000 now?

Mr. MITCHELL. I am asking for \$45,000.

The CHAIRMAN. You have been expending about \$40,000?

Mr. MITCHELL. \$40,716.30. That represents what it would actually cost us to carry on the thing in the Department of Agriculture as it is now. For instance, we have a man at Honolulu who gets \$2,200 a year, and his services are divided between customs work and the tea work. In that case I have estimated the very lowest that we could get a man there for, probably \$1,500, which would be the very lowest estimate. That is a small place.

The CHAIRMAN. Do I understand it would cost more in the Department of Agriculture than it would cost in the Treasury Department?

Mr. MITCHELL. Perhaps the first year we move it over, before we get shaken down. I might be able to find a man to do the same work in the Bureau of Chemistry, or Dr. Alsberg might be able to get a man at Honolulu to do that. We have got to have a man there.

The CHAIRMAN. What is the object of the transfer? I supposed it was to save money?

Mr. MITCHELL. The object of the transfer is, as the Secretary of Agriculture states in his letter, that as this does not bring in any revenue to the Government, and as it is purely a policing measure to keep teas that are not up to quality and purity out of the country, it should be placed under the department that handles similar work. That is the reason for asking this committee to transfer this work.

The CHAIRMAN. I assume the same force would be transferred. Why should there be an increase in expenditures? There are people now employed who are paid jointly out of other funds.

Mr. MITCHELL. There will not be, perhaps, an increase the second year, but the first year I can not take a man to Honolulu that is in the Bureau of Chemistry. I can not find anybody for testing teas.

Mr. McLAUGHLIN of Michigan. Why can not the same individuals, the same force, be transferred from one roll to another—from one jurisdiction to another?

Mr. MITCHELL. The proposition is to transfer every man that is in the service now, except in a place like Honolulu, where the man is a weigher and is also a tea examiner.

Mr. McKINLEY. You are trying to tell us that the man at Honolulu is doing other work in the Treasury Department?

Mr. MITCHELL. Yes; he gets \$2,200 for doing that and other work. If you transfer that law to the Department of Agriculture in that one case where he is doing double work, we will have to find somebody to do the tea work.

The CHAIRMAN. Is it not possible for the departments to cooperate?

Mr. MITCHELL. I do not think that under the law we could divide a man's salary between two departments if he gets more than a certain minimum salary—\$2,000, I think.

The CHAIRMAN. According to your statement, it would cost the Government about \$4,300 to make the transfer?

Mr. HARRISON. The man in Honolulu would not get \$2,200 for doing merely the weighing work after the tea work is taken away. His compensation would be reduced, would it not?

Mr. MITCHELL. He probably will be reduced, but I can not take the money out of the Treasury Department after I leave. The only thing we can do is to put a man there from the Agricultural Department, perhaps at \$1,500.

The CHAIRMAN. Is it proposed to transfer this force to the Department of Agriculture?

Mr. MITCHELL. That is what the Secretary of the Treasury has requested, and the Secretary of Agriculture has concurred in the request.

The CHAIRMAN. It is not so stated in the draft submitted. It states that they shall be paid the compensation in existence under section 2. What is that board?

Mr. MITCHELL. If the tea is rejected by the tea examiner, then the importer has the right within 30 days to appeal to the Board of Tea Appeals. This Board of Tea Appeals now is composed of three men drawn from the Board of General Appraisers. This proposition here is to appoint three men. We simply designate three men without salary from the Agricultural Department. It might be three men designated from New York, from the New York laboratory, by Dr. Alsberg, to assist in the cases coming up. This board seldom sits.

Mr. HUTCHINSON. This man to whom you say you pay \$2,200, is that charged up to your appropriation?

Mr. MITCHELL. No, sir; it is charged up to the customs.

Mr. HUTCHINSON. It is not charged to that appropriation?

Mr. MITCHELL. No, sir. This tea law has no special appropriation at this time. It simply is under the full customs appropriation.

Mr. HUTCHINSON. You say you have been getting \$40,000?

Mr. MITCHELL. I say we have been spending that much of the customs appropriation.

Mr. HUTCHINSON. Does that include the \$2,200?

Mr. MITCHELL. No, sir; it does not.

Mr. HUTCHINSON. In other words, the work you are going to do there on the tea question is in three groups?

Mr. MITCHELL. No, sir; \$1,500 I estimate should have been charged against tea.

Mr. HUTCHINSON. Is it charged against tea in your appropriation?

Mr. MITCHELL. I have no appropriation.

Mr. HEFLIN. He is asking for it now.

Mr. MITCHELL. If the work is transferred, the Department of Agriculture will ask it.

Mr. HEFLIN. You certainly get some from the Treasury Department?

Mr. MITCHELL. We have from a lump fund of \$10,000,000.

Mr. JACOWAY. Up to the present time it has been costing \$40,000 for this work?

Mr. MITCHELL. Yes, sir.

Mr. JACOWAY. In order to transfer it to the Department of Agriculture, which should have jurisdiction of it, it will cost \$45,000, a difference of \$5,000?

Mr. MITCHELL. I did not say it would cost that. I am asking for that because in making the transfer we should have some money for leeway. We might not spend it.

Mr. JACOWAY. Would it be worth \$5,000 to the American people and the taxpayers to get this out of the Treasury Department and into the Agriculture Department? That is what the committee wants to know. Would the public benefit that much in the transfer?

Mr. MITCHELL. The idea of making this transfer did not originate with me, and the persons who actually made the request could doubtless answer that question. The Secretary of the Treasury directed me to prepare a letter asking the Secretary of Agriculture if he would agree to this transfer.

Mr. HUTCHINSON. Do you know whether the Secretary of the Treasury will ask for a reduction of \$45,000 in his appropriation?

Mr. MITCHELL. I do not know.

Mr. HEFLIN. Do you think this transfer would be beneficial?

Mr. MITCHELL. I really do not think it would make very much difference. I think the law can be operated in one department as well as in another.

Mr. LEE. It merely puts it where it belongs?

Mr. MITCHELL. The idea is to put it where it belongs.

The CHAIRMAN. It occurred to me that the Bureau of Chemistry could conduct this work with less money in connection with its other work along that line, but according to your statement it is going to cost more. I thought at first this proposition was in the line of economy.

Mr. MITCHELL. It will coordinate the work. For instance, in the pure food department from time to time they collect samples to see that interstate shipments are all right, and if we were transferred over to the Agriculture Department, of course, we could handle that.

The CHAIRMAN. I thought that it could be done at less expense in conjunction with the other activities of the bureau.

Mr. MITCHELL. Yes; I believe so.

The CHAIRMAN. The statements here do not bear that out.

Mr. McKINLEY. Is it not true that they asked you something about an appropriation and you estimated it at \$45,000, but that it might possibly be less than \$40,000 when you get them consolidated?

Mr. MITCHELL. Yes; I simply made an estimate. I found out how much it costs now, and I added \$5,000.

Mr. McKINLEY. The cost for the present year is \$40,700, and you are asking for \$45,000.

Mr. HEFLIN. Do you think it would be beneficial to have that transfer made?

Dr. ALSBERG. I believe it would be beneficial because I believe when we get this over we can save some money. We have offices and laboratories in every place where there is a tea examiner. We have to have clerks, for instance, in New York, about 6 clerks doing our work in a laboratory with 30 chemists. It is entirely possible that we could save clerical hire and other personal services.

The CHAIRMAN. How much would you say?

Dr. ALSBERG. I would not say until the transfer has been made for a year. I am totally unfamiliar with this matter and am unable to say how much could be saved. I should think it ought to be possible by combining this work with other projects to make savings after we tried it out.

Mr. HEFLIN. Is it your judgment that the change is desirable and advisable?

Dr. ALSBERG. It is my judgment that the change is desirable and advisable, because the Department of Agriculture is really where the work belongs. It is a stepchild in the Treasury Department. I think this work is being done efficiently in the Treasury Department. I think Mr. Mitchell would continue to do the work in the same manner no matter where he was located, but we are dealing with the same group of importers, who are usually also importers of spices and other things, and it would be beneficial to the department and to the trade to have only one set of Government officers to deal with where they have two sets at the present time. I think when we get the work welded together we could probably save some money, but I would not venture to say how much.

The CHAIRMAN. Would the inspection of tea require the services of specialists that you have in the department, or could they do other work in conjunction with the inspection?

Dr. ALSBERG. The examination of tea, as I understand it, requires the services of specialists. We have not at the present time in the Bureau of Chemistry such specialists. It is possible, of course, that all of the time of these tea examiners is not taken up completely in every place with their examinations, and that we could get them other things to do in addition.

The CHAIRMAN. Would he be competent to inspect spices?

Dr. ALSBERG. We could probably use them to inspect other things, but we could not get along without men especially trained in the testing of teas. As I understand Mr. Mitchell's contention, men

Mr. MITCHELL. If we are allowed to swap over I can conscientiously have held the position of tea testers for commercial concerns before they came into the Government service. No one who has not had that training or experience is competent to do this work, but we might be able to use them also for spices and other things.

The CHAIRMAN. You do not state definitely that they could be.

Mr. MITCHELL. I am sure that they can be used especially in the line of coffee. We have in the service now several tea experts that used to be with coffee. In fact, at the port of New York and at the port of San Francisco at the present time we give the Bureau of Chemistry considerable help in identifying coffee.

The CHAIRMAN. Between the two of you, can you state positively that there will be an increase or decrease in expenditure?

Mr. MITCHELL. If we are allowed to swap over I can conscientiously say that after we get shaken down we will have a considerable saving.

Mr. McLAUGHLIN of Michigan. Please refer to the tea law.

Mr. HARRISON. The reference is given in the letter which I have handed to the chairman to be inserted in the record.

Mr. MITCHELL. We are having quite a lot of trouble getting examiners at the present salaries. Of course, every department tells you

that, but I have lost three examiners—three of my best tea examiners—in the last year and at the present time I am lacking at the port of New York, because I can not get a competent man to take a job at \$3,000, which is the highest salary we have.

Mr. McLAUGHLIN of Michigan. You might give a list of salaries, or give it offhand.

Mr. MITCHELL. Yes; I will insert it.

(The statement referred to follows:)

Salaries of Tea-Inspection Service.

1 supervising tea examiner-----	\$2, 750	4 samplers, at-----	\$1, 200
1 tea examiner-----	3, 000	1 sampler-----	1, 400
2 tea examiners, at-----	2, 500	1 clerk-----	1, 400
1 tea examiner-----	2, 000	1 clerk-----	1, 300
1 tea examiner-----	1, 800	1 messenger-----	900
2 tea examiners, at-----	1, 500	1 laborer-----	840
1 assistant tea examiner-----	1, 200	1 clerk to Board of Tea Ap-	
1 sampler-----	1, 350	peals-----	1, 800

This does not include compensation for Board of Tea Appeals or board of tea experts or for occasional temporary assistance.

Then there is one other thing. This Board of Tea Experts that are appointed once a year fixes the Government standard. They are appointed by the Secretary of the Treasury. It is an honorary position; they get only \$50 a year salary and their traveling expenses, and the comptroller has recently ruled that they do not get their actual expenses. They have to come long distances; some of them come from the Pacific coast, and some from the Middle West, at the same rate as other Government employees, which is \$5 a day; and those men, who are much bigger than \$5-a-day men, have come here and served the Government in an honorary capacity for \$5 a day.

The CHAIRMAN. Are they employees of the Government?

Mr. MITCHELL. No; they are all merchants.

The CHAIRMAN. The same rule would apply in your bureau, Doctor?

Dr. ALSBERG. We do not have that kind of employee, Mr. Chairman. This is a board of experts specially provided for in this act.

The CHAIRMAN. Your board would be selected from your regular employees?

Dr. ALSBERG. We could not select these people from our regular employees.

Mr. MITCHELL. No, sir.

The CHAIRMAN. You would have to have the same board?

Dr. ALSBERG. Yes, sir.

The CHAIRMAN. That does not involve a change, then?

Mr. McLAUGHLIN of Michigan. Would this not be subject to a point of order—to make an appropriation under an agricultural bill to carry out an act having nothing to do with the Department of Agriculture?

Mr. MITCHELL. This Board of Tea Experts only meets once a year in the city of New York. They fix the Government standards; they fix the lowest quality of tea that can come into the country.

The CHAIRMAN. I am at a loss to know why there should be a change in expenditure if the same board is to be maintained.

Mr. MITCHELL. I believe if you decide to transfer this law you should give us a limit of \$45,000, because without that I believe we are going to lose a lot of our examiners. As I say, I lost three.

The CHAIRMAN. Did you say the highest salary was \$3,000?

Mr. MITCHELL. We pay the man at New York \$3,000. We have to pay that to get a man. My own salary is less than that.

The CHAIRMAN. What is your salary?

Mr. MITCHELL. My salary is \$2,750. It is a statutory position.

The CHAIRMAN. What is the lowest salary?

Mr. MITCHELL. It runs down to as low as \$1,600, which, I think, the man at St. Paul gets, and I estimate that the man at Honolulu should get about \$1,500.

There is one other point. The salary of the supervising tea examiner is included in this \$40,000, but that is on the statutory roll now. I have included it in here to make an estimate of the cost when it goes over to the Agricultural Department.

The CHAIRMAN. That salary is included in the \$40,700?

Mr. MITCHELL. Yes, sir; but it is now on the statutory roll. My idea is that it should go on a lump-sum appropriation.

The CHAIRMAN. I take it that the Treasury Department would drop that if the transfer was made?

Mr. MITCHELL. That is what it would do.

If there is any other thing about the administration of this matter that you do not understand the chief of the customs, who has charge of the administration of it and knows all about that phase of it, would be glad to come up here.

The CHAIRMAN. I do not think that is necessary.

Mr. MITCHELL. My work is exclusively the technical part of it.

The CHAIRMAN. Thank you, Mr. Mitchell. We will now recess until 2 o'clock.

(Thereupon, at 12.45 o'clock p. m., the committee took a recess until 2 o'clock p. m.)

MORNING SESSION.

WEDNESDAY, JANUARY 7, 1920.

BUREAU OF CHEMISTRY—Continued.

STATEMENT OF DR. CARL L. ALSBERG, CHIEF OF THE BUREAU OF CHEMISTRY, DEPARTMENT OF AGRICULTURE—Continued.

The committee met pursuant to recess, Hon. Gilbert N. Haugen (chairman) presiding.

The CHAIRMAN. The committee will come to order. Mr. Harrison, who do you desire to appear.

Mr. HARRISON. If agreeable to the committee, we will continue with the estimates of the Bureau of Chemistry, the consideration of which was suspended yesterday. The first item is No. 67, on page 146, "For investigating the character of the chemical and physical tests which are applied to American food products in foreign countries," etc.

Dr. ALSBERG. Item 67, page 146, Mr. Chairman, probably requires no comment. No change is proposed. The work under this item

consists in making analyses and furnishing official certificates to exporters of food or drug products to those countries, chiefly South American countries, which will not permit foreign products to enter unless they are accompanied by the official Government certificate from the country from which they are exported.

Mr. McLAUGHLIN of Michigan. Does the exporter pay the expense of making these examinations?

Dr. ALSBERG. Yes. Prior to some five or six years ago, when this item was inserted, the work was done without charge; but it seemed to us that the exporter ought to pay the cost, and at present he is charged, as nearly as we can estimate, the cost of making the examination and furnishing the shipping certificate. That money, of course, is covered into the Treasury and does not become available.

Mr. JONES. How much of this total appropriation was paid back by the exporter last year; do you know?

Dr. ALSBERG. It varies from \$400 to \$1,000 per annum; last year, owing to the fact that exports to South America were less, it was only \$400.

Mr. McLAUGHLIN of Michigan. At how many places, and what are they, where you maintain this inspection service?

Dr. ALSBERG. It is not an inspection service. It is more of an analytical service. That is to say, a sample is drawn from the proposed material and analyzed in the laboratory. It is done in any one of our branch laboratories, whichever one happens to be nearest to the main office of the exporter. The main work is done at those ports from which exports to South America go—that is, San Francisco, New Orleans, and New York. We do not maintain a separate force nor do we maintain a separate laboratory for that purpose. It is done in the regular laboratory by our regular force.

Mr. McLAUGHLIN of Michigan. It would look as though you did maintain a separate force with a chemist in charge at \$3,000 and a chemist in charge at \$2,760?

Dr. ALSBERG. Only a part of the time of these men is paid from this fund. That is a matter of bookkeeping. We, as I explained yesterday, maintain for our own purposes a sort of budget system, and this sum is prorated among the various laboratory budgets at the various places, according to the amount of this kind of work that the individual laboratory does. Of course, the \$3,000 covers the chemists who actually do the work and, of course, we only pay a small part of their salary from this particular fund. There are no special men who limit themselves to this kind of work. Obviously, we could not maintain much of a force on \$4,280; and also, obviously, there is not enough of this work to maintain a separate force.

Mr. McLAUGHLIN of Michigan. Then this \$3,000 is not paid to one chemist?

Dr. ALSBERG. A small part of his salary is paid out of this fund, that part being as near as we can estimate will correspond to the amount of time that he gives to this work.

Mr. JONES. Have you a fixed charge to be paid for the service?

Dr. ALSBERG. No, sir; because the service varies with the nature of the material. Sometimes the analysis is an intricate and difficult one which may take a couple of days of the chemist's time to do. Sometimes it is an analysis that can be carried out in an hour.

Mr. JONES. How do you figure the service; on what basis; by the hour or day?

Dr. ALSBERG. We figure it by the time it takes to perform the work.

Mr. McLAUGHLIN of Michigan. Do you make these charges with the idea that the total of them will meet the entire expense of the service?

Dr. ALSBERG. We have not been doing it exactly on that basis. We have been doing it on the basis of handling each individual analysis on what we estimate to be the cost of that individual analysis. We have not been making an effort to exactly get back from the exporters what is spent here because we can not foresee in any one year how much work there is going to be. Some years there is more and some years there is less. Also there is other work than the actual testing of samples for exporters done under this item. We investigate the character of the chemical and physical tests which are applied to American food products in foreign countries, and study methods of analysis as is authorized by the item.

Mr. JONES. For instance, if the chemists spend one day at it, what do you charge?

Dr. ALSBERG. We charge one day of his salary plus what we estimate to be a fair overhead charge. Of course, it is an estimate. Some years there is an excess in this appropriation, and some years there has not been.

Mr. JONES. So if their requests for reports would take up practically the entire time of your corps you would be reimbursed for the full amount plus a reasonable charge for overhead?

Dr. ALSBERG. Yes; but this corps is not occupied anywhere near their full time on that.

The CHAIRMAN. According to the estimates the salaries are \$3,600?

Dr. ALSBERG. Part time.

The CHAIRMAN. The part time is estimated at \$3,600, and in 1919 you expended \$3,313.34?

Dr. ALSBERG. Yes. We figure on that \$680 or \$700, or thereabouts, as the cost of material and overhead.

The CHAIRMAN. What is the next item?

Dr. ALSBERG. The next item is item 68, page 147:

For investigating the preparation for market, handling, grading, packing, freezing, drying, storing, transportation, and preservation of poultry and eggs, etc.

There is no change suggested in that item. I might use this particular item as an illustration of the conditions which arise under the present arrangement of lump-sum appropriations. The director of that particular line of work, Dr. Mary Pennington, resigned from the service this fall. She was drawing a salary of \$3,780 in the bureau. Her place was not filled by a new appointment at her old salary, but her chief understudy, who was getting a salary very much less than that, was advanced to take her place with a moderate promotion in salary, which brings his salary not anywhere near her salary. His salary is \$2,760 now. He was advanced to \$2,760 from \$2,520, and an additional young man at a low salary was appointed to move into his place.

By that method we are able to utilize the difference between the salary which Dr. Pennington received and the salary paid now for

the promotion of the work. Had we had a statutory position it would have been necessary to appoint a new man entirely at that particular salary, or advance Dr. Pennington's understudy to Dr. Pennington's full salary before it was fully demonstrated that he was going to be an ideal man for the place. Now, if he turns out to be the kind of a man that we anticipate he will be, he will ultimately get her salary. In the meanwhile he gets some promotion. Thus we have some flexibility.

The CHAIRMAN. Where the salary is fixed by the statutory roll, you hold that you have to pay the full salary and can not pay anything less?

Dr. ALSBERG. That would be the case unless in the next year's estimates the salary was reduced.

The CHAIRMAN. You are called upon to pay the full salary whether they are worth it or not?

Dr. ALSBERG. We could not do otherwise.

The CHAIRMAN. Do you do it?

Dr. ALSBERG. We could not do otherwise unless you changed the salary in the next appropriation bill.

The CHAIRMAN. Is there anything in the law compelling you to pay the full salary?

Dr. ALSBERG. Either that or leave the place vacant.

The CHAIRMAN. For instance, if the salary is \$3,500, you are compelled to pay the full \$3,500?

Dr. ALSBERG. As far as I know, the law is very clear on that point. We would either have to create a new position on the lump fund at a lesser salary, or else fill the \$3,500 place, or else leave the place vacant and have the money revert into the Treasury. I think there is no other alternative. If there were no lump fund, of course, no position at a less salary could be created.

The CHAIRMAN. That is the law?

Dr. ALSBERG. As I understand it, I am right on that.

The CHAIRMAN. If that is the law, and that is the way you construe it, it can be easily fixed. We could make it read "not to exceed" that amount. That should be written in the law if the practice is as you state.

Dr. ALSBERG. It is like this, Mr. Chairman. Suppose we had under this appropriation a statutory position, say of \$4,000. We would either have to fill that position at \$4,000 or leave it vacant. I do not see any alternative.

The CHAIRMAN. Why would you have to fill it? Why would you have to pay the salary?

Dr. ALSBERG. Because that salary is fixed by law and the only way you could appoint a man at a less salary is by creating a new position on the lump fund at a less salary.

The CHAIRMAN. Then we should insert the words "not to exceed."

Dr. ALSBERG. Might I point out also this phase of the situation? Dr. Pennington's understudy was getting \$2,520.

The CHAIRMAN. Mr. Harrison, what is the law on that?

Mr. HARRISON. We can fill a statutory vacancy only at the salary provided.

The CHAIRMAN. It is so construed; who passed upon it?

Mr. HARRISON. So far as I know, no one has rendered a specific opinion on the matter.

The CHAIRMAN. It is based upon the law?

Mr. HARRISON. It is the law itself.

The CHAIRMAN. Can you refer us to that law?

Mr. HARRISON. If, for instance, Congress provided a place at \$4,000, the man who occupies it must receive that amount. That is the law itself. Congress fixes the compensation of Members of Congress at \$7,500. No one has any authority to pay them a smaller amount. The amount is fixed by law.

Dr. ALSBERG. Might I, in that connection, point out in this specific instance the way it works out? This man, Dr. Pennington's understudy, got a salary of \$2,520 when Dr. Pennington was in charge. He was put in charge of the work when she resigned and in recognition of that was advanced to the salary of \$2,760. He knows that he is on trial in that place, that if he does good work of high grade he may under existing conditions look forward to being promoted as he deserves it from time to time, to, at least Dr. Pennington's salary, and possibly, if he turns out better than Dr. Pennington, to a salary limit which is fixed by you gentlemen at \$4,500. That is a tremendous spur and stimulus to that particular man to do his best. If the salary is fixed, if it is \$2,760 on a statutory roll, he is at the end of his future in the department unless the salary is changed and a new statutory position created at the higher salary. That is the way the psychology of it works out for the individual. I thought I would like to illustrate in this specific instance just exactly how not having a statutory position works out. We appoint a young man at a lower salary very frequently.

The CHAIRMAN. How many on the statutory roll are overpaid? They are finding fault with the statutory roll. You say you are compelled to pay them the full amount.

Dr. ALSBERG. Our scientific staff is not on the statutory roll. Only clerks, inspectors, laborers, etc., are on that roll. I do not think at the present time the positions are overpaid, on account of the change in the general cost of living. I do believe that four or five years ago the minor positions on the statutory roll, which in our bureau are all clerical positions, were in a considerable number of instances overpaid. I mean to say that five or six years ago we were paying in many instances more than the market rate for stenographers and clerks. Those are the only kinds of statutory positions we have in the bureau except my own and that of inspectors and laborers. At the present time, with readjustment going on, I do not think anybody is being overpaid on the statutory roll, but I do believe that throughout the Government service five or six years ago the minor positions on the statutory rolls, which are of a clerical type, and those are the only statutory places we have, were in a number of instances overpaid. Miss Pennington's place was not on the statutory roll. I am using it as an illustration. If she had been on the statutory roll I would have had to fill it at the full salary. I give this illustration to show what would happen.

Mr. TINCHER. You are saving \$1,000 a year on the salary of the man who is now doing her work?

Dr. ALSBERG. If he makes good, he will ultimately get to her salary. If he does not make good, we have saved money.

The CHAIRMAN. Would inserting the words "not to exceed" overcome it?

Dr. ALSBERG. Yes, sir; so far as this particular difficulty is concerned, but there are other objections to an inflexible statutory roll which would not be overcome, and that, in effect, is what you gentlemen have already done. You have fixed a limit of \$4,500 in every lump-sum salary in the Department of Agriculture, and neither the Secretary nor the President himself has authority or power at this moment to pay anybody on a lump fund in the Department of Agriculture, no matter what his position may be, over \$4,500.

The CHAIRMAN. I am not talking about salaries fixed here, but statutory salaries.

Dr. ALSBERG. Yes.

The CHAIRMAN. My understanding was that when you found a man that should be demoted you demoted him to a lower salary. It has always been the contention in this committee that that matter could not be taken care of. It seems to me that you now contend that there is an injustice to the Government, so that the Government is compelled to pay a salary which the employee does not deserve.

Dr. ALSBERG. I think that would be a very frequent result of putting the scientific and technical men on the statutory roll.

The CHAIRMAN. Then we should insert the words "not to exceed."

Dr. ALSBERG. That would avoid that very difficulty, Mr. Chairman. You gentlemen perhaps do not realize that the average salary of the scientific staff paid under the lump-sum fund in the Bureau of Chemistry, averaging them all, is \$2,000, which, I think, is the most direct answer that I can give to the question of the payment of excessive salaries. If our average is \$2,000 for technical men who have been through college, many of them having degrees of doctor of philosophy, I think you will have to admit that under present conditions there can not be much abuse in taking advantage of our paying people on the lump-sum fund.

Mr. HARRISON. There are over 15,000 employees in the department who receive less than \$2,740.

Dr. ALSBERG. Our chemists have all been through college and had a technical education and many of them a Ph. D. for graduate work before they came to us. Our average salary on the lump-sum fund is \$2,000.

The CHAIRMAN. When will the Reclassification Commission make a report?

Mr. HARRISON. I understand that it is expected to submit its report by the 12th of March. It was originally contemplated that the report would be in the hands of Congress by the first week of January, but the date has recently been changed to March 12.

The CHAIRMAN. Have you any report from them?

Mr. HARRISON. I understand the commission has stated definitely that it will submit its report by that time.

Dr. ALSBERG. I might say in that connection, Mr. Chairman, that it was stated to me that the commission could make some kind of a report right now, but it was not a report with which they were completely satisfied.

The CHAIRMAN. For the information of the committee, will you state exactly what that board did?

Dr. ALSBERG. They made a very thorough investigation of the Bureau of Chemistry. As a matter of fact, they asked that a man from the Bureau of Chemistry be detailed to assist them. Prof. Johns, of the Bureau of Chemistry, has been working with the commission and spending all his time with the commission from early in the summer—along in June, I think it was—until the present time. In addition to having charge of one of the laboratories, he is what might be called the bureau's personnel officer. I mean he handles the appointments of scientists and all that sort of thing for me; so he was the man best qualified for that particular work. He has secured for the commission a statement concerning the nature of the work of every employee of the Bureau of Chemistry in Washington. He has tabulated them on cards, the salary they get, when they were appointed, nature of their work, quality of their work, and what that work would correspond to in industrial or commercial life. I mean what rank such a man would hold in an industrial corporation.

These cards have been classified and arranged by the commission and studied by them and grouped in proper groups with other cards for similar employees in other services so that the commission can establish a series of classes and can group these various individual employees in the Government service. An exceedingly thorough study of what is going on in the Bureau of Chemistry has been made, and I assume the same thing has been done in other bureaus. Of course, their plan is to group the positions. They have classified positions rather than individuals. They classify the position in definite classes, and, having established the definite classes, they plan to make definite recommendations to Congress as to what is a proper salary scale for the positions in each individual group. I think that they have done a tremendous lot of very thorough work.

The CHAIRMAN. Upon what information do they base their estimates?

Dr. ALSBERG. On the salaries paid.

The CHAIRMAN. Where does the man that represents your bureau get his information? Do you make a comparison with salaries in the department and outside?

Dr. ALSBERG. He did not do that, but the commission sent around men to do it. They sent them to the leading universities and manufacturing establishments and conferred with the presidents and managers to learn the salary scale being paid there. They sent their men to the leading chemical industrial plants. For instance, they sent them to the Du Pont company to get the salaries paid there. They sent them to the General Electric Co., in Schenectady, to confer with such men as Steinmetz and Whitney, and learn what salary scale was being paid there. They sent them to the National Aniline Works, in Buffalo, to learn what salaries were being paid there. This material was laid before the commission.

The CHAIRMAN. But they were department people—Government people—all of them. Did they employ experts of their own?

Dr. ALSBERG. Yes. The commission has employed, as I understand it, the firm of Arthur Young & Co., of Chicago, efficiency engineers, or organization engineers, who, I am told, have been advising great

corporations on the matter of hiring and firing, to use the ordinary parlance of the industries. This firm has done an exactly similar job for the Canadian Government. They have classified for the civil-service commissioner of the Canadian Government—they have a commissioner there instead of a commission—the civil-service of Canada and turned in a report to the Canadian Government and to Parliament. They did that this fall. I have not heard whether their report and their recommendations to the Canadian Government have been adopted or not.

This firm working under instructions for the commission has brought in some of its own investigators, men who are absolutely unconnected with the Government, who, as far as we know, have never been connected with any government, State, city, or Federal. My understanding is that this group of men who were sent out to investigate current rates of pay in the universities and research institutions of the country like the Rockefeller Institute and the Carnegie Institute, and corporations like the General Electric and the Du Pont Co. were working under the direction of the employees of the commission. The commission also sent letters direct to many commercial concerns asking for similar information. They have secured much data bearing on the matter.

Having the scale of pay in the industries and universities for jobs of a certain type, and having the specifications for the jobs in the Government service, they can compare them.

Mr. HUTCHINSON. Do you mean to say they are going to fix a statutory roll on those lines during war times?

Dr. ALSBERG. I do not know what they are going to do. I only know to a certain extent what kind of investigations they have made. What they are going to recommend is known only to the members of the commission.

Mr. HUTCHINSON. You know that the chemical firms you name will pay any salaries?

Dr. ALSBERG. These chemical firms will pay any price for a star. They will not pay any price for the average man. This is true of business anywhere. If you are looking for a president of a large corporation, looking for a star, you will pay anything to get the particular man you want.

Mr. HUTCHINSON. Just in these particular war times they did not consider wages. They paid anything to get the man.

Dr. ALSBERG. Yes.

The CHAIRMAN. Especially when there was 10 per cent plus.

Dr. ALSBERG. Yes.

The CHAIRMAN. At any rate, the investigation was made by disinterested parties?

Dr. ALSBERG. It was made under the direction of disinterested parties. Some of the facts regarding salary were collected, I believe, by Government employees who worked under the direction of the commission. Much of the information was collected by correspondence conducted by the commission.

Mr. HUTCHINSON. How did Young & Co. get into it? Were they recommended by Government employees?

Dr. ALSBERG. The Government employees had nothing to do with it.

Mr. HUTCHINSON. How did Young & Co. get into it? They did not do this thing for nothing.

Dr. ALSBERG. They were employed by the commission. They were induced to go into it by the commission, whether on the basis of employment or voluntarily, or what the arrangement between the Government and Arthur Young & Co. was, I have not the least idea, or who suggested Arthur Young & Co. I have not the least idea. I imagine the commission looked around to see what had been done in this direction and discovered that Arthur Young & Co. had been retained by the Canadian Government.

The CHAIRMAN. Has that firm been employed by the Government before? Has some of that work been done heretofore?

Dr. ALSBERG. I do not know. I never heard of Arthur Young & Co. until this fall, when I was told that they were working for this joint commission. I know nothing about the firm of Arthur Young & Co., except what I have heard in this very indirect way. Then, of course, when I heard about them I got the report which they made to the Canadian Government because I was interested in seeing what they had done.

Mr. ANDERSON. It is supposed that when this report is finally perfected it will resolve all doubts with regard to every question of departmental operation with respect to the payment of Government employees, and after that everything will be easy.

Dr. ALSBERG. I should hope that that would happen.

Mr. ANDERSON. The thing will just right itself after that.

The CHAIRMAN. What provisions are to be made for the promotion and demotion of clerks on merit under this plan?

Dr. ALSBERG. Mr. Chairman, the joint commission asked me to serve on a committee, an advisory committee on employment policy. I represented a minority of one on that committee. I did not agree with the majority, and I do not now agree with the recommendations that were made by the advisory committee. I do not know whether the commission is going to adopt the recommendations of the majority or minority. I made a minority report. I do not know what they are going to recommend, I do not feel quite at liberty to say what the recommendations of this advisory committee might be. In the first place I do not agree with it, I might misrepresent it, and in the second place it was made to the commission, and I do not know that the commission is going to accept it. I do not know what they are going to do. But they are proposing to provide machinery for promotion or demotion to do away with all confusion.

The CHAIRMAN. But merit is to be given consideration?

Dr. ALSBERG. Merit is to be the whole thing. We differ, this advisory committee and I, as to how merit shall be established. I was a minority of one on this advisory committee. I do not know anything about what the commission is going to do.

Is there anything further on item 68?

The CHAIRMAN. I think you had better say something about what has been done and what you contemplate doing. It is an old item and one that has created a great deal of interest.

Dr. ALSBERG. There have been interesting features in connection with this item. One feature deals with the prevention of the breakage of eggs when they are shipped in interstate commerce, as a matter of conservation. You may recall that some years ago I reported

the results of an investigation to determine what was responsible for the tremendous breakage of eggs coming to eastern points from the egg-producing sections in the Middle West. We were able to show that of the main causes was unsatisfactory practices in the packing of eggs and in the stowing of egg crates in the car. The methods of doing it had not been standardized. Everybody was doing it a different way, and a great many ways of doing it were very bad, so that a tremendous quantity of breakage resulted. We were able to undertake educational work, which brought a great diminution in the amount of breakage. This educational work diminished the breakage in the metropolitan district of New York to a small fraction, as judged by claims which are made, of what it had been.

The CHAIRMAN. How was the difficulty removed?

Dr. ALSBERG. By recommending a standard egg package and standard methods of stowing eggs in crates in the cars and making demonstrations among the big egg handlers and big egg centers in showing people how to handle eggs.

The CHAIRMAN. By a change in the construction of the package?

Dr. ALSBERG. Not a change in the construction of the package but the universal adoption of one type of package, which was at that time not universally used; also by emphasizing the importance of having the fillers that come in egg cases made of a certain quality of paper stock, and, further, by education on the danger of using fillers a second time. If you use them more than once, the second time they are no good. Just here we have had an interesting development in that direction in that we have been able because the Government has control of the railroads to cooperate with the Railroad Administration. The Railroad Administration sent to us a group of men from its freight department, who were trained and instructed by our people in these methods of preparing and handling eggs. Then whenever an egg car arrives at its destination in bad order one of these men was sent by that particular railroad to the shipper to visit with him and watch him ship a car of eggs and to explain to him that he was not doing it right. Of course, we do not pay these men's salaries, as they were railroad employees. In that way we have been able, acting through the Railroad Administration, to get before the individual shipper that we had never been able to reach before these methods. We have been able to eliminate damage and loss of eggs from breakage to a very considerable extent. Because of the Government control of the railroads we were able to cooperate with the employees of the railroads in a way that we would hardly have been able to do under the old conditions.

The CHAIRMAN. The remedy, then, was in using a proper filler of uniform size?

Dr. ALSBERG. Yes, and the work has been largely educational and demonstration work. Another thing we have been able to do in this connection is to increase the number of small egg cooling and chilling plants in the producing section. We have worked out, as I have reported in the past, the best methods of slaughtering and packing poultry, chilling it and eggs and egg products. Following that, we saw the need of the establishment of small local chilling plants so that the eggs could be chilled and shipped under conditions in which they would arrive without much spoilage at the terminal points. It seemed to us that this was tremendously important if the egg indus-

try and poultry industry were not to fall into the hands of a few large people. So we have designed, as I think reported in a previous year, a small poultry chilling plant, which is chilling with ice, and also one slightly larger, which is chilled by refrigerating machinery, the establishment of which will cost on a prewar basis—I have not the figures on the present basis—it will cost for the ice plant less than \$1,000 additional equipment and for the machinery plant something around \$7,000 or \$8,000, which will take care of anywhere from a carload to several carloads of poultry and eggs a week. We have been giving assistance to small men all over the production section in equipping and in the establishment of such plants. A large portion of the time of our force is spent in explaining to these people just how to operate and helping them to get started, the idea being that a logical thing to do is to get your poultry and your eggs in shape, so that they will keep before being shipped. It will then arrive without spoilage and without loss and enable these small men to compete successfully with the large men who have had cold storage plants at their disposal.

The CHAIRMAN. Have you any suggestion as to the eggs before they reach these plants from the farm or the store?

Dr. ALSBERG. Here is where an interesting relation can be pointed out between law enforcement and this kind of constructive work. We could not do very much with the eggs before they reached the collecting point for shipment under any such arrangement as this. So several years ago we began proceedings under the food and drugs act, after we had conducted an educational campaign, against individual shippers of eggs who shipped eggs with more than 5 per cent of rotten eggs. That was a tremendous stimulus to the man on the farm to bring the eggs in quickly instead of waiting several weeks. It was a tremendous stimulus to the country-store keeper not to watch the market hoping the price would rise while his eggs were in a hot shed spoiling fast.

The CHAIRMAN. Is there hoarding or holding of eggs for a higher price? Is it not a fact that the farmer markets his eggs at the most convenient time? Those who live 8 or 10 miles from town who can not come to town every day wait until they have several cases or somebody comes to town.

Dr. ALSBERG. That is very true, Mr. Chairman, but it is a fact that since we have objected to shipping eggs that contained an undue amount of rotten eggs in interstate commerce, the quality of eggs that have been shipped has been tremendously improved. The store-keeper used to hold them for a rise in price and ship them 25 to 30 per cent rotten, regardless of their condition.

The CHAIRMAN. I understand that. What can be done to overcome that and to save the eggs? I think very few do it purposely.

Dr. ALSBERG. Very few of them do it purposely.

The CHAIRMAN. What is the remedy?

Dr. ALSBERG. The remedy is to candle the eggs.

The CHAIRMAN. How can they keep them from rotting?

Dr. ALSBERG. You can not keep them from spoiling except by keeping them cool and shipping them promptly. The action that we have been able to take under the food and drug act has enormously stimulated the cooling of the eggs and the shipment of them promptly so that there is no question but what there has been an

enormous conservation of eggs as the result of our action under the food and drug act in cooperation with the States.

The CHAIRMAN. What is your action under that?

Dr. ALSBERG. The action under the food and drug act is to proceed against a shipment of eggs that contain more than 5 or 10 per cent of rotten eggs, if those eggs have been shipped in interstate commerce.

Mr. McLAUGHLIN of Michigan. And the seizure of the eggs and the arrest and prosecution of the person handling or owning them; or what is it?

Dr. ALSBERG. The seizure of the eggs results in the release of the crate with the understanding that the eggs will be candled before they go through.

Mr. McLAUGHLIN of Michigan. Then you have to go into court in the first instance?

Dr. ALSBERG. Yes; sometimes.

The CHAIRMAN. They generally settle without that?

Dr. ALSBERG. They generally settle without, and it is a lesson to the man. He does not ship that kind of eggs again. The case usually is in rem instead of criminal, and it is a lesson to him so that he does not ship that kind of eggs again. We cooperate with States which have passed what are known as the model egg handling law. We called a conference in St. Louis two years ago with all the States to see what could be done. At that time a model State egg bill was drafted, which has been passed by a great many State legislatures; it makes it obligatory for a dealer to candle his eggs before he ships them. Anybody can candle eggs if he wants to take the trouble to learn. The result has been that eggs which are likely to become bad are recognized either on the farm or by the storekeeper and are not shipped. You know perfectly well that a cracked egg, for example, or a dirty egg, or an egg that has become wet, and had the bloom washed off is absolutely sure to spoil in shipment. It may be at the moment that you candle it a perfectly good egg, an edible egg. That egg should be consumed locally. Those which have become cracked, wet or dirty, are kept to-day at home more than formerly and are not shipped. The result has been that the storekeeper in scores and scores of cases candles out the eggs; uses for his local consumption those liable to get out of condition and only ships the prime eggs which will stand up. This result has been brought about by the combination of efforts of State officials in the passage of State egg laws, largely as the result of suggestions of State officials and the Bureau of Chemistry in a number of important egg-producing States.

The CHAIRMAN. Have you issued a bulletin on it so that they have that information?

Dr. ALSBERG. Yes.

The CHAIRMAN. You tell us in the bulletin how to treat them. What has been done in the way of suggestions as to artificially canning or preserving the eggs on the farm?

Dr. ALSBERG. The only suggestion which has been made by us in bulletins, literature, or press notices scores of times is to have the farmer learn to candle and keep for his own use those eggs liable to go out of condition, to keep those eggs which he has to store in the

coolest place just exactly as he keeps the milk, and never let them get wet or put them any place where the eggs will sweat.

The CHAIRMAN. At what temperature should they be kept?

Dr. ALSBERG. The ideal temperature is just above freezing, 34 or 35° F. Naturally, in the summer time the farmer can not get that temperature.

The CHAIRMAN. Have you made suggestions to the merchants?

Dr. ALSBERG. We have worked out a lot of suggestions to the merchants and have published all these suggestions.

The CHAIRMAN. It is just a matter of refrigeration?

Dr. ALSBERG. It is a matter of refrigeration. It is a matter of candling, and it is a matter of prompt shipment.

Mr. HUTCHINSON. I suppose you have noticed the great increase in the freezing of the cold-storage eggs. How do you account for that?

Dr. ALSBERG. That is a different proposition. I do not want to seem to tell you things that you are fully informed on, but we have in storage four kinds of egg products. We have shell eggs which have to be kept at a temperature of about 34° F. so that they will not freeze, because if they freeze crystals of ice form and penetrate through the yolk and white so that the yolk and white get weak and run together. That is why we must not freeze the egg.

Mr. HUTCHINSON. I mean the broken eggs—the frozen eggs.

Dr. ALSBERG. These frozen eggs are put up in that manner for economical reasons. In the first place, an egg which is not good enough to go into storage as a shell egg, you can hold frozen at 10 below zero if it is broken out. In addition, when you break the egg out you will get more eggs into a 10-gallon can than you could put into cases. You require less storage space.

Mr. HUTCHINSON. These eggs are frozen for the bakeries. They are not first-class eggs.

Dr. ALSBERG. That depends upon what the bakeries want. There are bakeries that make high-grade stuff and have high-grade frozen eggs and there are other bakeries that use second-grade eggs.

Mr. HUTCHINSON. Do you mean to say that they grade the cracked eggs and eggs that are not first class; freeze them at different grades?

Dr. ALSBERG. You are right—that as a rule the frozen eggs are the off-grade eggs.

Mr. HUTCHINSON. I do not know whether you told us about the grading of the eggs in storage. The reason I asked that is to show that by having them candle the eggs they are not sending those spoiled eggs.

Dr. ALSBERG. In the first place I do not want to be understood as saying that we have created ideal conditions or that we have been as successful as that. An egg at the start of its journey to market may be all right, but it may en route get cracked or get dirty or get wet, or the freight car may be held on a siding in July at 90° F., so that when it arrives it will not be a first-class egg. There are an immense number of eggs that become second-class eggs and some that become totally unfit before they reach the market. One of the great difficulties we have under the food and drugs act, one of the hardest jobs is to keep the egg breakers from using

addled and rotten eggs for these frozen eggs. We have a certain number of prosecutions against egg breakers for breaking out and freezing eggs that are tainted and unfit for food. However, as a rule the product is made from perfectly edible eggs, which for some reason or other it is not deemed advisable to put into storage.

Mr. LEE. What is the comparative value of frozen eggs and eggs in cold storage?

Dr. ALSBERG. The average price of cold-storage eggs for 1918 was 44.76 cents per dozen and for 1919 was 49.92 cents per dozen, according to quotations in the New York Produce Review and American Creamery. During the past two or three years the value of frozen eggs per dozen has been about 10 to 12 cents less than that of cold-storage eggs.

The CHAIRMAN. Have you anything especially in mind for next year?

Dr. ALSBERG. We have no new project in mind.

The CHAIRMAN. You just plan to continue the work along the present lines?

Dr. ALSBERG. Yes; it is now very largely demonstration work.

Mr. McLAUGHLIN of Michigan. How about this last work you have spoken about? Have you made a thorough investigation and reached a conclusion as to what should be done? Is it necessary to continue? Can we cut off some of this work and save some money?

Dr. ALSBERG. You can cut off some money, I venture to say, from most appropriations of the department or any other department. It depends upon whether you want to go on for some time longer and carry this work through and conserve more foodstuff. That is what it amounts to. It is for you gentlemen to say whether you need the money more at the present time than you need these conservation measures.

Mr. McLAUGHLIN of Michigan. How long has this item been in the bill?

Dr. ALSBERG. Five or six years.

The CHAIRMAN. It has been going on since 1914. It started with \$50,000 and has been going along at about that amount each year.

Dr. ALSBERG. Yes.

The CHAIRMAN. Next is item 69, page 148:

For investigating the handling, grading, packing, canning, freezing, storing, and transportation of fish, shrimp, oysters, and other shellfish, and for experimental shipments of fish, for the utilization of waste products, and the development of new sources of food, \$20,000.

Dr. ALSBERG. That is along the same line as the egg work. The work with fish is exactly similar work, with this addition, that it includes investigation of the canning of fish. In the case of eggs, they speak of canned eggs, but what they mean is that eggs are broken out, put into the can, and frozen. They have been cooked or sterilized and steamed like fish and vegetables.

The CHAIRMAN. A point of order was made against that item last year. What is the authority for this appropriation? It went out on a point of order.

Mr. HARRISON. Yes; and was restored by the Senate.

Dr. ALSBERG. It is the duty of the Bureau of Chemistry, as well as the department, to deal with the manufacture and production of

food. This is such a proposition. Furthermore, this work develops information necessary in the enforcement of the food and drugs act.

The CHAIRMAN. Is there anything more on that?

Dr. ALSBERG. No. The next item is 70, on page 148:

For the biological investigation of food and drug products and substances used in the manufacture thereof, including investigations of the physiological effects of such products on the human organism, \$25,000.

The CHAIRMAN. Could we not consolidate items 68 and 69?

Dr. ALSBERG. Yes; I am inclined to think it would be a very good thing. The greater part of the work is done by the same staff.

The CHAIRMAN. Why should they not go in together?

Dr. ALSBERG. There is no reason at all. The reason they were set out separately was merely because we in the bureau have been trying to make a considerable number of individual smaller items so that you gentlemen would be better informed. If it is your desire that these items be combined, there is no reason why they should not be.

The CHAIRMAN. Every time you split them into smaller items the overhead charge is increased.

Dr. ALSBERG. That is not necessarily true, but in this particular case the work is done essentially by the same people.

The CHAIRMAN. Have you any other items that might be consolidated to an advantage?

Dr. ALSBERG. Item 67, on page 146, which deals with the enforcement of the food and drugs act, and the item which deals with furnishing these certificates to exporters might be combined. It is done by the same staff that enforces the food and drugs act.

The CHAIRMAN. With what item would you consolidate that?

Dr. ALSBERG. With the food and drugs act item.

The CHAIRMAN. What number is that item?

Dr. ALSBERG. That is item 74.

Mr. YOUNG. I think Congress is responsible for these things being split up. The constant criticism all the time has been that they have been put under one group.

Dr. ALSBERG. These things were split up originally because the committee expressed the desire to have the thing in greater detail as individual items.

The CHAIRMAN. The committee discovered its mistake and has been trying to consolidate them ever since. It did consolidate some last year.

Dr. ALSBERG. There is no reason why these items should not be consolidated. They were separated because it was believed the committee wished it.

Mr. McLAUGHLIN of Michigan. Under each item there seems to be an organization with comparatively high-priced men. Each particular work of the bureau calls for a separate organization.

Dr. ALSBERG. In many cases we deal with part time of individuals. Take item 69, there is a mycologist in charge and a chemist in charge. The chemist devotes all his time to this work, but the mycologist is a man the main part of whose salary is carried on the food and drugs act fund because the main part of his time is examining foods suspected of being adulterated. With the bacteriologists, there is one bacteriologist who is also on part time. The duplication of organi-

zation is rather apparent than real. The high-priced man is investigator in charge. You can not get a research man to handle many lines at the same time. A man can not do research work simultaneously on half a dozen different fields.

The CHAIRMAN. It simply increases the bookkeeping to have men working under four or five appropriations.

Dr. ALSBERG. There is no question but it might be more efficient and easier and save a certain amount of overhead, though not so much as might appear here.

The CHAIRMAN. How about item 70?

Dr. ALSBERG. Item 71 could, if it were desired, be combined with the item on general agricultural investigations, item 65. That is an agricultural chemical investigation and it is of the same type that we carry on under 65.

The CHAIRMAN. By the same employees?

Dr. ALSBERG. No; not by the same employees. At one time items 65 and 71 were combined. They could be recombined if it is the desire of the committee and Congress.

The CHAIRMAN. Can you comment on that?

Dr. ALSBERG. Item 70, "For the biological investigation of food and drug products and substances used in the manufacture thereof, including investigations of the physiological effects of such products on the human organism, \$25,000."

That is investigation. In importance to agriculture I believe this investigation to be second to none that the Bureau of Chemistry is conducting. It deals, in the first place, with the finer chemistry of foodstuffs, and in the second place with the practical application of the information thus obtained to the problems of feeding and of dietetics. Under this provision the finer chemistry of such materials as the peanut, the soya bean, grain sorghum, and copra press cake is studied. Copra press cake is the residue that is left from the coconut when you squeeze out the oil; and I will come back to that in a moment, if I may.

The finer chemistry of these very important materials has been investigated. Prior to the undertaking of this investigation we knew as good as nothing about the chemistry of these materials. This investigation has furnished information which tells us exactly where in the scheme of foodstuffs these materials and similar materials fit in. It has been possible on the basis of the knowledge obtained in this way to work out rations in cooperation with the Bureau of Animal Industry for stock, and in cooperation with Dr. Langworthy's office, in the States Relations Service, for human beings, which will utilize to far better advantage these and other very important feeding materials. The time is past when it is sufficient to know about a food material or a feeding material how much nitrogen it has in it, how much fat, and how much starch or sugar. You have to know what protein is in it and what the nature of that protein is. Such information is being furnished by these investigations. It is information that shows, for example, what the peanut and copra contain.

Mr. YOUNG. Copra is dried coconut?

Dr. ALSBERG. Copra is dried coconut meat. Both copra press cake and soya-bean press cake contain most of the chemical ingredients which are absent from the bread grains and from the mill

feeds, the by-products of the milling of the bread grains. This investigation shows how the bread grains and the by-product mill feeds may be supplemented with small quantities of these materials so as to get a nearly perfect and complete feed. This is also applicable to the human economy. For example, you can not raise a child or a young animal from weaning to maturity upon bread as the only source of nitrogenous material. However, if you take wheat flour and mix it with about 15 per cent of peanut flour—that is, peanuts from which the oil has first been extracted by pressure and the cake which remains behind ground to flour—and bake a loaf from the mixture, you produce a very excellent and palatable loaf upon which you can raise animals from weaning to maturity and have them reproduce without any other source of nitrogen. In other words, you can make from wheat and peanuts a far more valuable loaf of bread than from wheat alone. You can do the same thing with the soya bean, which will be a nearly complete diet.

Mr. McLAUGHLIN of Michigan. How about the milk and butter fat?

Dr. ALSBERG. I was talking about a complete diet only from the standpoint of protein for animals from the time of weaning onward. Of course, you have to supplement this peanut-bread diet with certain mineral salts which can be incorporated in the loaf and cost practically nothing, and also with that necessary material, vitamine, as the physiologists call it, which is found in butter fat.

Mr. McLAUGHLIN of Michigan. Do you mean you can supply enough of that in bread?

Dr. ALSBERG. No. You can supply enough on a piece of buttered bread. We have raised in the laboratory white rats, which is the experimental animal used for this type of experiment, on bread made from wheat with a little added peanut flour and, in addition, some salts which are not found in wheat or peanuts, and, further, in addition, some butter fat, from weaning to maturity. They have produced young that were healthy and thrifty upon such a diet of wheat and peanut-flour bread, salts, and butter fat.

Mr. McLAUGHLIN of Michigan. Do your conclusions differ from those reached by Prof. McCollum?

Dr. ALSBERG. No; they are in harmony with his conclusions. You see his conclusions covered two primary points that in a diet you must have in addition to the ingredients we have hitherto assumed as necessary, two other ingredients known as fat soluble A and water soluble B. We do not know what they are. We know that the fat soluble A, as he calls it, occurs in butter fat, and that the thing called water soluble B occurs in many vegetable materials. Wheat contains very little, practically, no fat soluble food accessory. That is what they are, food accessories. It does contain the water soluble material to a considerable extent. Peanuts contain it to a very large extent, so that a loaf made in the manner I have indicated is deficient only in that material which is supplied by butter and certain other vegetable fats. The fat of animal organs, of the heart and the liver, has it.

Mr. McLAUGHLIN of Michigan. Such structures have it; but it is not found in the fats that are ordinarily used in making oleomargarine?

Dr. ALSBERG. No; it is not found in what we call the reserve fats. We have to distinguish in the animal economy between two types of fats. One is found in the protoplasm and is an integral part of living matter. The other is fat which is a reserve supply. It is found under the skin and in various places in the body. It is used as a sort of reserve supply for the animal when it gets insufficient food.

Mr. HEFLIN. Oleomargarine is a fat?

Dr. ALSBERG. Yes; it is a fat, but it does not contain these particular ingredients, as ordinarily made, to which Mr. McLaughlin refers. In other words, you can not have an animal grow on it. You can not make the young animal grow with oleomargarine substituted for milk or butter. It can supply its energy from the oleomargarine but it can not supply this mysterious growth accessory, the chemical nature of which is unknown, which has been known to scientists only for six or seven years and is apparently necessary for normal growth. That is not ordinarily found in oleomargarine, but it is found in butter. That is the essential difference from the physiological standpoint between the two substances. This growth accessory is not found in lard or suet or mutton fat, which is a reserve fat. You do get it in liver fat.

Mr. McLAUGHLIN of Michigan. In any large quantity?

Dr. ALSBERG. Not in large quantity, and that is not the kind of fat on the commercial market. Lard and suet are not made from these fats commercially, and commercially animal fats do not contain any considerable quantity of this growth-producing substance. We do not know what that substance is.

The CHAIRMAN. In other words, it is contended that a strong and healthy person can eat oleomargarine without any injurious effect?

Dr. ALSBERG. I would not put it that way. Butter does two things. It supplies us with fuel or with energy.

The CHAIRMAN. Will any fat do that?

Dr. ALSBERG. Oleomargarine will do that equally well, and any fat which is liquid at the temperature of the body will do it whether oleomargarine, butter, coconut oil, suet, or lard. Each one will supply the same amount, practically, of energy, but butter also supplies a certain ingredient which is found in milk, namely, this food accessory, this growth-promoting substance, without which young animals can not grow.

The CHAIRMAN. Experience shows that whenever oleomargarine is used in hospitals or with infants it retards the growth and health.

Dr. ALSBERG. I do not think it is fair to put it on that basis. I would not say that it retards the growth. You might just as well say that not feeding an animal at all retards its growth. It has no positive injurious effect. Oleomargarine has no positive injurious effect, but it is deficient in one essential thing in which butter is not deficient. After an adult individual has attained his growth and is in normal health, he gets enough of this material out of eggs and his general mixed diet, so it is a matter of indifference to the health whether an adult consumes oleomargarine or butter.

The CHAIRMAN. I thought I was putting it rather mildly. I know wherever oleomargarine has been substituted for butter in hospitals the death rate has been higher.

Mr. HEFLIN. I never heard of it.

The CHAIRMAN. It has often been stated before this committee.

Mr. HEFLIN. I have been on this committee and do recall that we have had testimony to the effect that many people prefer oleomargarine.

The CHAIRMAN. Some also prefer tobacco to sugar.

Dr. ALSBERG. My only point is that oleomargarine is not injurious; it is deficient in certain ingredients of which butter contains an abundance.

Mr. McLAUGHLIN of Michigan. You say one who has reached his full growth and is in normal health, using oleomargarine, will get what he needs from eggs and other food? Eggs contain this indescribable quality, too?

Dr. ALSBERG. Surely. Otherwise the chick could not grow. The mother puts it into the egg, else the chick could not grow.

Mr. YOUNG. The complaint in my town is that we can not get enough oleomargarine or butter to get by on. We would like to have either. I want to ask you a question about coconut before we adjourn. I noticed during the war times there was shipped out in my section of the country for the first time in years what I took to be dried coconut.

Dr. ALSBERG. That is what it is.

Mr. YOUNG. It was shipped in and the oil mills were engaged during the war in pressing that coconut. I am curious to know the commercial purpose. I discovered that in my own home town.

Dr. ALSBERG. I am glad you gave me the opportunity, because, in my opinion, the maintenance of the copra-crushing industry in the United States is one of the most important things that we should look after. Copra comes, in the main, from the South Sea Islands and from the Philippines. The Philippines are the largest producers of coconuts of any section in the world. Before the war the coconuts would be opened by the natives and dried. That was done sometimes by just taking out the meat and drying in the sun, sometimes drying over a fire. The traders come and pick them up and ultimately they would find their way either to Liverpool or to Hamburg or Bremen or Marseille. Very small quantities used to come to the United States. There has been one plant in California, I believe in San Francisco, that has crushed coconuts for a long time. These dried coconut meats are then ground much as cotton seed is ground, and then put through a press and the oil squeezed out.

Mr. McLAUGHLIN of Michigan. By that drying process does not a lot of oil escape?

Dr. ALSBERG. No; it does not escape; but it may turn rancid if the drying has been done unskillfully or the storage has been unsatisfactory. From such copra, instead of a nice, sweet, bland oil, you obtain a dark, black, foul-smelling product which can only be used after refining. That applies also to cotton seed. From sound seed you obtain an oil free from rancidity, but where the cotton seed has been allowed to ferment and spoil you will observe the same phenomena. Coconut oil is refined by much the same procedure by which cottonseed oil is refined. The method consists in taking out the acids developed in the substance by treating the oil with hot caustic soda, which converts the acid into soap, makes a sodium salt or soap which is soluble in water and can be separated and washed out.

That is what is called the refining of the oil. The oil is then filtered through a special kind of earth which takes the color out of it, and then it is ready for use. Coconut oil is different from other oils in this respect, that in ordinary temperatures in the North it is solid; it is not an oil at all. It is oil in the Tropics, but in our climate a good part of the year it is solid, and that is one of the reasons which leads to its use as in the manufacture of oleomargarine. They can substitute the coconut oil, which is really a solid, for beef stearine in the manufacture of oleomargarine. The copra cake is the material that remains behind when the oil is expressed from the copra.

Mr. YOUNG. That is what I want to know about.

Dr. ALSBERG. It contains about 20 per cent protein and also some of this material which is present in butter, not much of it, and also some of this water soluble unknown, mysterious material called water soluble B. The protein in the copra cake is very perfect in quality, so that copra cake represents one of the very best feeding materials known. That has long been recognized in Europe, and one of the reasons they have been so keen to get this copra imported into France and Germany is because they thus control not only a very important part of the fat and oil industry, but they get a by-product that is of immense value to them as a concentrated stock feed; in particular, as a concentrated dairy feed.

Mr. McLAUGHLIN of Michigan. It is better for matured animals than for growing animals.

Dr. ALSBERG. Oh, yes; it is, however, also good for young animals. I am not talking about the coconut oil; I am talking about the cake, the residue. Now, it seems to me, from every point of view that it is very important that we should retain in this country a copra crushing industry.

Mr. YOUNG. I want to ask you along that line. An oil mill was built in my town, for the purpose of crushing cotton seed and cake and meal ground from it, and during the war I discovered that these mill men were drying coconut cake in there for the first time in my experience. That was the first time I saw that in my country. Has that proven now to be a commercially profitable proposition for those oil mills to undertake?

Dr. ALSBERG. It has during the war because we were practically the only buyers of copra. The war came along. Shipping was hard to get. At least, the shipping of France and England was otherwise occupied. Copra kept stacking up in the South Sea Islands, Tahiti, the Solomons, the Philippines, and they could not sell it. Europe could not buy it. We could buy copra almost at our own price, and, of course, it was profitable, but whether it will continue to be profitable will depend upon whether we are able to secure what we need for our purposes at a reasonable price or whether Germany, England, and France and other countries which are in the market for this raw material will bid the price up to such an extent that we can not make a profit out of it.

The CHAIRMAN. If there is nothing further, we will recess now until 10 o'clock to-morrow morning.

(Thereupon, at 12.45 o'clock p. m., the committee adjourned until 10 o'clock, Thursday, January 8, 1920.)

MORNING SESSION.

COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Thursday, January 8, 1920.

BUREAU OF CHEMISTRY—Continued.

The committee met, pursuant to recess, Hon. Gilbert N. Haugen (chairman) presiding.

STATEMENT OF DR. CARL L. ALSBERG, CHIEF OF THE BUREAU OF CHEMISTRY, DEPARTMENT OF AGRICULTURE—Continued.

The CHAIRMAN. What comes next Mr. Harrison?

Mr. HARRISON. Dr. Alsberg will continue the discussion of the items under the Bureau of Chemistry if it is agreeable to you.

The CHAIRMAN. Very well.

Dr. ALSBERG. The next item is No. 71, on page 149:

For the study and improvement of methods of utilizing by-products of citrus fruits, and the investigation and development of methods for determining maturity in fruits and vegetables, in cooperation with the Bureau of Plant Industry and the Bureau of Markets.

That work, I am able to report, has been, we believe, very successful in California, in which State, up to this season in the main, it has been conducted. In 1913 or 1914, when the work was first undertaken in California, or at least when it was started in California—preliminary work had been going on before that—the prices of oranges and cull lemons was about \$5 a ton, with a very insignificant demand for them at that. At the present time the price to the grower for cull oranges and cull lemons is upward of \$25 a ton. That has been the result of the development of a citrus by-products industry, the Bureau of Chemistry assisting. The industry, of course, developed more rapidly because of the war than it would have developed otherwise.

The chief products are citric acid and citrate of lime, which prior to this time were imported almost exclusively from Italy, lemon oil used for flavoring, orange marmalade and jams and jellies, candied orange and lemon peels, and the manufacture on a small scale of a few fancy products like orange vinegar, which is produced in small quantity for fancy trade—a particularly choice product.

Now, all in all, some 6,000,000 pounds of by-products were produced during the last fiscal year as against almost none in 1912 and 1913, before this work started. Of course I do not want to claim that nothing would have happened if the bureau had not been on the spot, but I think it has been able very materially to assist in the establishment of what seems to be a very nice little permanent industry, which is netting the growers of California—because most of these plants are cooperative plants owned by growers' companies—a very nice return for fruits which can not be shipped, and which formerly were practically all wasted.

The work during the current season has been transferred to Florida, in an effort to do the same thing for Florida. While the mate-

rials there are abundant, while there is a lot of culls to be utilized, the conditions in Florida are very much more unfavorable, so far as getting this kind of an industry started is concerned, than they are in California, for the simple reason that the type of business which is conducted in Florida is of a different character from that which is conducted in California. The business in California is more highly organized, and the California Citrus Fruit Exchange, which is a cooperative exchange of growers, has a representation of 65 per cent of the industry. In Florida the exchange has a much smaller percentage of the growers. Because cooperation is not practiced so widely in Florida, it is very much more difficult to get this by-products industry established in the same way in Florida that it is now established in California.

Mr. PURNELL. Just what did the Government do in connection with the establishment of this industry?

Dr. ALSBERG. The Government, in the first place, worked out most of the processes which are now used for the manufacture of these articles.

Mr. PURNELL. Do you use the same process in Florida that you used in California?

Dr. ALSBERG. We are talking about Florida?

Mr. PURNELL. I am talking about any place where you do this.

Dr. ALSBERG. The research work—that is what you mean?

Mr. PURNELL. Yes.

Dr. ALSBERG. In working out new methods the work that has to be done for Florida as compared with that which was done for California is relatively small. Methods worked out in California will only have to be modified for Florida conditions. Take, for instance, citric acid—citrate of lime. It will probably not be possible to produce citrate of lime commercially in Florida because there are not many lemons, and it does not pay to produce it from oranges or grapefruit.

Mr. PURNELL. Having worked it out in California, my thought was whether or not it was necessary to continue this appropriation for that work in Florida, in view of the fact that it is profitable to fruit growers who sell.

Dr. ALSBERG. It will not be necessary to do anything much in Florida under this particular appropriation, except educational and demonstrational work, to encourage Florida to go into the industry. The same methods can be used for Florida. You are quite right on that particular proposition.

Mr. PURNELL. I should think that, if the Florida fruit growers were alive to the industry as a business proposition, they would send their representatives to California to learn.

Dr. ALSBERG. That is just the difficulty. It is largely, in Florida, a matter of helping them to develop.

Of course the products which we make in Florida will be a little different from the products we make in California. We will not make any citrate of lime or citric acid in Florida; but in its place we have developed a grapefruit juice—carbonated grapefruit juice; it can be used carbonated or uncarbonated—which is something that the people who had worked on it heretofore have not succeeded in getting.

Mr. PURNELL. Do those experiments necessarily have to be conducted at the places where the fruit is grown?

Dr. ALSBERG. The experimental work has to be conducted where the fruit is; but to-day we have practically finished with that. We have finished with the experimental work on citrus fruits, except on one point, the matter of the production of lemon oil. The lemon oil produced in California is not a satisfactory grade. The method of producing lemon oil in Sicily is to squeeze the peel by hand into a sponge. When the sponge is saturated with the oil, you squeeze that into a bucket. That is done, or used to be done before the war, by hand, by labor which was paid the equivalent of 20 cents a day. Of course we can not think of producing lemon oil in this country by any such system. We have endeavored to devise a machine that will perform this operation mechanically and cheaply. We have devised a machine that will produce lemon oil, but we have not yet completed the work of devising a machine and methods that will produce lemon oil of the same quality as that produced in Italy. The reason why the lemon oil that is being produced commercially does not come up to the Italian standard is that the oil comes more or less in contact with the juice. The oil is then separated from the juice.

In the process a certain flavoring matter known as citral is lost so that we do not get oil of quite the same quality. Now, we believe that a little more work will finish the process so that we can produce the same quality of oil as the hand-process oil of Sicily, and then our oil will not sell, as it often does now, at a discount.

Moreover, the citrus work that we have been doing here is not the only work that has been conducted under this investigation.

Mr. PURNELL. Can these extracts be produced without alcohol?

Dr. ALSBERG. Lemon extract is made by taking five parts, by weight, of oil, and dissolving it in 95 parts of alcohol. Just enough alcohol is used to cut the oil. That is lemon extract. They do not take the lemons to-day and extract them, but they take the lemon oil and make a 5 per cent solution of lemon oil in the weakest alcohol which will cut the oil, which is around 20 to 25 per cent. If the alcohol is weaker the oil separates out. That was the ordinary lemon extract of the past. To-day, in most States, that extract can not be used, and one of the problems upon which we are working under some of the general investigation appropriations is the development of methods for the preparation of flavoring extracts without the use of alcohol as a solvent. One of the ways to do it is to make an emulsion. Instead of making a solution we make an emulsion from some acacia gum. Another method is to dissolve the flavoring matter in some neutral edible oil. There are still a number of difficulties to overcome. We have not, or rather the manufacturers have not developed entirely satisfactory methods for producing all flavoring extracts to take the place of the old methods using alcohol as a solvent.

Mr. TINCHER. There are several of the larger companies to-day that claim that their methods of making the extract and marketing it are satisfactory.

Dr. ALSBERG. Oh, yes; there are a good many different types on the market. They are either emulsions or solutions in oil. But we

do not believe that all of them are wholly satisfactory. They do not keep well.

Mr. TINCHER. Have you, as a chemical proposition, condemned any of them?

Dr. ALSBERG. When I say they are not satisfactory I do not mean that they are not wholesome. I do not mean that they are objectionable; I mean that they do not keep well, and they do not mix uniformly into dough and other viscous products. Take, for instance, these emulsions which are thick, like cod-liver oil emulsion, where the flavoring oil is split up into very fine particles. When you put them into cake batter, unless stirring very thoroughly, you do not get it evenly distributed throughout your cake. A flavor in the form of a solution goes more easily into all parts of the batter. Women using the new types of flavors in the way they used the old extracts, complain. That is what I mean. Also if handled in the same way as the alcohol extracts they are likely to deteriorate before they are used up.

Mr. TINCHER. Do you not think that the effort of the Government and the campaign of the Government should be to educate women as to how to use them?

Dr. ALSBERG. That should be a part of it.

Mr. TINCHER. When I first came here I had a little trouble on the floor of the House about this extract business. There was an effort to have these extracts exempted under the prohibition law so that they could be sold in dry territory. In my State they get along very well. The women understand the use of the other extracts, and, unless there is some objection on the score of health, there is no objection; and I understand that the Department of Agriculture states that there is nothing detrimental to health.

Dr. ALSBERG. There is nothing detrimental to health. They are just at present, however, using them in a different manner from that in which they used the old extracts. The best of them are pretty well made. A good many manufacturers do not know how to make them. There is room for improvement. But there is nothing in the flavoring extract situation which is such that the country is going to be unhappy or uncomfortable or in bad shape because alcohol can not be used.

Mr. TINCHER. Here is the first thing that is coming up on the extract proposition: The prohibition law will have to be amended if the balance of the United States is going to be dry. It is going to be amended or we are going to have to take off the market these extracts that are made with alcohol, so that they can not be used as beverages; and if there is nothing detrimental to health in the other extracts I think the department will be frank and candid with the public about it and let them understand that there is no reason why they should not use the other extracts.

Dr. ALSBERG. If I remember correctly, as long as four or five years ago we issued a press notice in which we informed the public that this new type of flavoring material was obtainable and that there was no objection to its use. I do not think that we have ever—at least, that anybody in the Bureau of Chemistry has ever—taken any other position, excepting that these products are all right. We have encouraged their manufacture, but we believe that the methods of manufacture are capable of improvement. We believe that five years

from now there will be very much more perfect preparations than there are at the present time. That is what I meant when I said they were not satisfactory. They are perfectly wholesome and there is no reason why they should not be used, but you can not use them, as at present made, in the same way in which the old types were used.

Mr. TINCHER. People who know how can use them?

Dr. ALSBERG. Oh, yes; and, as a matter of fact, bakers for years have been using them. Alcohol is very expensive, and an extract made without alcohol is cheaper than an extract made with alcohol, so that the great baking companies for years have been using the other types of extracts.

Mr. McLAUGHLIN of Nebraska. Before you leave this particular item let me ask you a question: You spoke of the value of these culls in California being increased from \$5 a ton to \$25 a ton. Is there any market at all for these culls in Florida at this time?

Dr. ALSBERG. There is not much of a market for the culls at the present time in Florida. There is a little orange juice put up there, and a little grapefruit juice, but there is not much market at the present time for the Florida culls.

Mr. McLAUGHLIN of Nebraska. Do you think a market could be built up for them in Florida as good as that in California?

Dr. ALSBERG. I am absolutely certain that it can, and it is a very serious need of the grapefruit industry of Florida that a market for the culls be made. A few years back you will remember that the country began to wake up to the fact that grapefruit was a very delicious breakfast fruit, and you will remember the prices you used to pay, 25 and 30 cents apiece, for them.

The CHAIRMAN. Why do you say "used to"?

Dr. ALSBERG. Is it still that high? [Laughter.] At any rate, an enormous acreage of grapefruit was planted, so that Florida is threatened with an overproduction. We believe that grapefruit juice properly made and carbonated can be made a rather staple product, like grape juice, for instance, and that there will be quite a wide market for it. Of course, there will not be the same wide market for grapefruit juice that you would get for alcoholic beverages, but we think there is room for a very nice little industry down there that will bring a lot of money to the people in Florida. We are trying to get it started this year.

Under this appropriation we have also undertaken some other work. There is a large demand from the industry for work on canteloupes, on prunes, and on other fruits, for the purpose of preventing waste and making by-products. Work of this kind has also been started at the present time, mostly in the West. That work is largely in its beginning.

Then, under this same appropriation we cooperated with the Bureau of Plant Industry in the study of what the botanist calls bud variation. In the old days they used to take almost any kind of buds to bud orange or lemon trees.

We have been cooperating with the Bureau of Plant Industry in studying particularly productive trees—we studying the chemical features and they the botanical—and it has been established that the property of a given tree or a given bud is transmissible through the bud as well as through the seed. That has been established

chemically as well as otherwise, and the result is that the California Citrus Fruit Exchange has established a large office for supplying the growers with the types of buds that have been studied by us. Is there anything further on that, Mr. Chairman?

By bud selection the productivity of the trees may be greatly increased and the quality of the fruit vastly improved.

The CHAIRMAN. We will take up the next item.

Dr. ALSBERG. The next is item 72, "For investigation and experiment in the utilization, for coloring purposes, of raw materials grown or produced in the United States, in cooperation with such persons, associations, or corporations as may be found necessary."

That appropriation was granted soon after the beginning of the European War, because of the dye situation, and I am glad to be able to report that a large number of very valuable contributions to the promotion of the dye industry have been made under this appropriation. I reported last year one new process that has been worked out for making a very valuable intermediate for the dye industry which formerly sold as high as \$7, but which is now being sold on the market for 60 cents, and is actually being used in the dye industry.

The CHAIRMAN. You say it sold as high as \$7?

Dr. ALSBERG. It sold as high as \$7 a pound and is now being produced for 60 cents a pound; that is the last quotation I know of. The price has been tobogganing right along. It may be less than 60 cents now.

That substance is being manufactured at the present time, by this process, by three plants with which the bureau has cooperated, and which the bureau has taught to produce it. It is an intermediate that is necessary for a whole list of dyes, and also for a whole series of medicaments. You will understand that many materials which are used in the manufacture of dyes are also used in the manufacture of medicines. For instance, carbolic acid is an example.

The CHAIRMAN. Will you state what these dyes are?

Dr. ALSBERG. The most important of the group of dyes for which this substance can be used as an intermediate are the phthalein, of which the eosines and rhodamines are the most important. The indigos can also be made from this intermediate. There are many other dyes made from this substance.

What we are doing under this appropriation is studying, for the benefit of the industry, the processes, rather than attempting to actually produce dyes. The industry is secretive; industrial chemists have not time to carry on this kind of a research. A very valuable service can be performed to the industry by doing a lot of the fundamental research which otherwise would not be done, and placing it at the disposal of the industry. A large amount of that kind of work which the industry is now using and applying has been done under this appropriation.

There have been taken out a large number of patents for processes, and a large number of patents are now pending in the Patent Office which will be of value to the industry.

In addition, we have, as a side issue, made a photographic developer. We conducted in this laboratory the bulk of the chemical investigation which the aircraft service required, particularly on the

manufacture of those dyes which you have to have for photographic purposes. If it is necessary to photograph under adverse conditions of illumination, or to photograph camouflaged objects, you have to stain your plate with certain dyes which are sensitive; that is, which absorb the particular colored light that is reflected from the object you want to photograph. These dyes before the war were imported from Germany. Nobody in this country knew how to make them. I am informed that in England and France they never succeeded in making the whole list needed, but we succeeded under this appropriation in manufacturing and making all those that had been made in Germany, and some new ones which are better than those which were known before. The production of these dyes is now going on in the United States.

Mr. LESHER. Are the dyes you are making now as good, as a whole, and as lasting, as the German dyes were?

Dr. ALSBERG. Do you mean these photographic dyes?

Mr. LESHER. Whatever it is that you are talking about.

Dr. ALSBERG. We are not actually manufacturing dyes, you understand.

Mr. LESHER. You are evolving the processes by which they can be manufactured?

Dr. ALSBERG. Yes.

Mr. LESHER. Will they be as good as the German dyes?

Dr. ALSBERG. Yes. The troubles that arose during the war with regard to American dyes were not due to the inferiority of American dyes. A chemical substance is the same whether it is made in Germany or in the United States. The trouble arose, and the trouble still exists, from the lack of variety. There were between 200 and 900 dyes of various kinds manufactured and used before the war. Now, when we went into the war we could not make the whole list. We could only make a limited number. Of course we had to use the limited list. We had to use the wrong dye for a given purpose. You understand that certain kinds of dyes are used for silk, others for wool, others for cotton, others for leather. The American manufacturer often had to use the wrong dye with unsatisfactory results because it was all he could get. But, used for the specific purpose for which the dye was intended, it is just as good made in this country as if it was imported. The difficulty came from our not having all varieties, and, therefore, we had to substitute dyes which were unsuitable.

Mr. LESHER. Can you make them as cheaply as the Germans can?

Dr. ALSBERG. That I can not say. Nobody knows what it costs. The market price of dyes in the United States is not in any respect an index of what it is costing the manufacturers to produce, for the reason that the dyestuff manufacturer had to spend thousands and hundreds of thousands of dollars in experimentation. I suppose he figures that as investment. He had to build a plant. Sometimes he had to build the plant two or three times over, because it would not work the way he built it first. He figures that up as a charge against his investment. He does not know what conditions are going to prevail when international conditions are normal, so that he wants to write off his investment, including experimental work, two or three failures, possibly, in building his original plant, the machinery that he had to junk—he wants to write that off as quickly as possible be-

cause he does not know whether he is going to be able to compete two or three years from now or not. Of course he puts that into the present price of his dyes, so that the present market price of dyes made in the United States gives you no idea whatever as to the actual cost of production.

Mr. HEFLIN. I have seen somewhere a statement that there was an excellent silk dye made from peanut oil.

Dr. ALSBERG. I do not know anything about that.

Mr. HEFLIN. You never have made that test?

Dr. ALSBERG. No; I am not familiar with that statement. I do not know.

Dr. ALSBERG. As the bureau's dyestuff investigation involves the matter of patents, would you object if I brought to your attention the very unfortunate condition that exists with reference to Government patents? It has nothing to do with this appropriation act, and if you do not want to take the time I will not discuss the question further.

Mr. ANDERSON. That has already been presented to the Committee on Patents.

Dr. ALSBERG. Yes.

Mr. ANDERSON. It is all available in the hearings, I mean.

Dr. ALSBERG. Yes.

Mr. ANDERSON. Is there any trouble about taking out patents?

Dr. ALSBERG. Not about taking out patents; but if you take them out they are open to the use of everybody, and nobody will use them.

The CHAIRMAN. They are open to everybody?

Dr. ALSBERG. Yes; they are open to everybody; and nobody will use them. You take this particular process we have been talking about. One concern in Pittsburgh undertook to develop it commercially. It cost them possibly \$100,000 till they were actually producing commercially. They had two young chemists in their plant. Those chemists resigned, and they got the details of the machinery which these people invented, and they started competition. Now, that is what frightens people away from using Government patents.

Mr. ANDERSON. Have you been using the total amount carried in this appropriation?

Dr. ALSBERG. We have been using it.

Mr. ANDERSON. Do you think you will have to use it for the next fiscal year?

Dr. ALSBERG. That is entirely a question of the amount of work that we will do. There are very few of these appropriations under which we could not do less or could not do more, and every dollar spent would be of value to the country. It is a matter of judgment for you gentlemen to say how extensively we should go into these questions.

The CHAIRMAN. Are the investigations on vegetable dyes?

Dr. ALSBERG. No; they are mostly coal-tar dyes.

The CHAIRMAN. Are the investigations limited to coal-tar dyes alone?

Dr. ALSBERG. No; we have been experimenting with some vegetable colors.

The CHAIRMAN. The question was asked last year whether this was confined to coal-tar dyes.

Dr. ALSBERG. The bulk of the work is being done on coal-tar dyes: We are doing some work on vegetable dyes, on plants that are found in the United States or can be grown here for dye purposes; but that is a small part of the work. The bulk of it is on coal-tar dyes.

The CHAIRMAN. Your investigations, then, cover the whole field?

Dr. ALSBERG. Yes.

The CHAIRMAN. We will take up the next item.

Dr. ALSBERG. The next item is number 73:

For the investigation and development of methods for the manufacture of stable sirup and of methods for the manufacture of sweet sirups by the utilization of new agricultural sources.

I am sorry to have to report that on this investigation we have not been able to make the progress that we had hoped, so as to pretty well complete it this year, at least so far as cane sirup is concerned, for the simple reason that the man in charge of this work, Dr. Hudson, who was one of the two or three most distinguished sugar research chemists living, resigned to go into industrial work, and his understudy resigned to do the same thing two months afterwards. That is one reason.

The other reason is, as I stated last year, prohibition. The methods which we had worked out for the manufacture of sirup which would not crystallize and would not ferment were dependent upon having an abundant supply of brewers' yeast. Brewers' yeast is no longer obtainable commercially, and it has been necessary for us to find a new source of material that would do the same thing as brewers' yeast. We believe we have that source of material in certain molds. Both factors have held up that work so that it has not been completed. A new man has had to be broken in, and the work will have to be carried on, in consequence, at least one more year before it can be regarded as ready to close.

The CHAIRMAN. How much money did you expend last year?

Dr. ALSBERG. We spent the bulk of the—

The CHAIRMAN. I mean for the current year. Can you estimate it approximately?

Dr. ALSBERG. We will spend \$7,000, I think, this year.

The CHAIRMAN. You will need practically all of this for next year?

Dr. ALSBERG. I think so. We did not spend the full amount because of these resignations.

The CHAIRMAN. Speaking about resignations, is it not a fact that employees of the bureau secure a liberal education from the department? Does not that account partly for the trouble that you have in keeping your men?

Dr. ALSBERG. Yes; that is true. Of course these two men did not go into the employ of sirup manufacturers. Dr. Hudson went to no manufacturer; he established himself as a consulting chemist, and of course with his standing and reputation, which he acquired while he was in the Bureau of Chemistry—that is where he made his reputation—he is earning now as a consulting chemist, and his own master, more than \$10,000 a year.

The other man, his understudy, Dr. Dale, was taken over as a research chemist. We paid him \$2,500 and they pay him \$4,000, I

think, as the chemist of this new food products corporation which is the metamorphosed Distillers' Securities Co. This company is manufacturing in their old distilleries and breweries such products as malt sirup, malt sugar, glucose, yeast, and products of that kind, the machinery for the manufacture of which is practically identical with the machinery for the manufacture of beer and distilled liquors.

In this particular case the experience that he gained with us is what these people are buying, but they are not buying his experience in regard to this matter we were speaking of, because they are not going to make those particular articles.

The CHAIRMAN. I am trying to get at the reason of the difficulty of obtaining and keeping these men.

Dr. ALSBERG. If you mean to make the point that a young man who goes into the Bureau of Chemistry and stays with us for four or five years can get a better job at the end of the four or five years than he would have achieved, other things being equal, by beginning at the bottom in a factory, you are quite right.

The CHAIRMAN. That ought to be an incentive to them to enter the service of the department.

Dr. ALSBERG. Sometimes it is of direct benefit to the Government. When a manufacturer of food products, who has been violating the food and drugs act persistently and stupidly, hires one of our young men we do not as a rule thereafter have any trouble with him. The bureau-trained man keeps him straight. Thus we save the time and the money that we otherwise would have to pay in prosecuting; so the loss of the man is a benefit indirectly to us.

Before I leave this last item——

The CHAIRMAN. You will need the same amount on that next year?

Dr. ALSBERG. Yes.

The CHAIRMAN. You think you will get through with that next year?

Dr. ALSBERG. I hope so. It depends on whether this new man that I am counting on turns out all right.

The CHAIRMAN. We discussed this last year.

Dr. ALSBERG. Yes. May I bring up one other thing that has to do with future work, not under this item but related to it? It is the utilization of the sweet potato. There have been inquiries on the part of people in the sweet-potato producing sections of the country for some work which will utilize the cull sweet potatoes and the overproduction. I wish to bring that to the attention of the committee, because Representative Crisp is one of the gentlemen who has consulted me on this matter. Of course we have no funds for the work at present. I believe it to be possible to establish ultimately a very valuable agricultural industry, using sweet potatoes as its raw material. Sweet potatoes contain naturally 10 per cent of cane sugar, and it is possible by treating sweet potatoes with a small amount of malt to convert the starch in the sweet potato into malt sugar, and thus to make a most delicious sirup for table use.

The sweet potato contains more starch than the white potato. It is one of the cheapest sources of starch, so that it should be possible to establish a sweet-potato starch industry in the United States. If you have starch, of course you can produce from it malt

sugar and glucose, and a material known as dextrine, which is used as an adhesive to gum postage stamps, envelopes, and the like.

The CHAIRMAN. Have you made an investigation of that?

Dr. ALSBERG. We have done a little preliminary work.

The CHAIRMAN. Do you suggest anything in connection with that?

Dr. ALSBERG. I think we will not be able to touch it this year, but some day I think this committee will want to have work done in that connection, because it may prove of great value to the southern part of the country.

The CHAIRMAN. What progress have you made on the sirup?

Dr. ALSBERG. We have worked out methods for making sirup that will not crystallize, will not ferment, and will be uniform in composition.

The CHAIRMAN. Is it more palatable?

Dr. ALSBERG. It is more palatable and more uniform. We offered sirup that we made from sugar cane grown in south Georgia on the New Orleans molasses exchange, simply stating that it was a cane sirup. They did not know that it was made by the United States Government, or by whom it was made. That sirup brought 10 cents a gallon more than the highest market price for any other sirup of that type during that season. Of course we did not own that sirup. It was made under our supervision by the manufacturers. We found, down where it was made, that the neighbors had bought up all there was of it because it was superior to anything else they could get in that neighborhood. We have not been able to close that investigation because we need yeast.

The CHAIRMAN. Does it cost more to manufacture it?

Dr. ALSBERG. Yes; it costs a little more. It takes a little more brains and pains.

The CHAIRMAN. Does it require any more equipment?

Dr. ALSBERG. The only additional equipment is a cypress tank, which can be bought for \$20.

The next item is No. 74, for the enforcement of the food and drugs act, for which no increase is asked. The reason that, despite the fact that the cost of operating is naturally greater than it ever was before, we have asked for no increase is that the increase asked in our fund for collaboration, which I discussed day before yesterday, item 66 on page 145, will relieve a certain burden on the enforcement of the food and drugs act, because it is the men who are doing the work on the enforcement of the food and drugs act who are required to do this collaborative work, to make the analyses for all the Government departments.

Mr. HUTCHINSON. Doctor, I see there is a mention of liquors here. We are not going to have any liquors.

Dr. ALSBERG. That is the language of the law. That is the way the law reads.

Mr. HUTCHINSON. Then you ought to change the law, ought you not?

Dr. ALSBERG. It does not say "spirituous liquors."

Mr. HUTCHINSON. I see.

Dr. ALSBERG. These soda waters and the hundreds of near beers, which contain all kinds of things, are causing us a lot of trouble.

This is just the language of the law, and we did not feel at liberty to change that.

I want to make it clear that there is no increase asked there, but that if the Congress sees fit to give us more money on the collaborative fund in this other item, that will take a part of the burden off of this particular fund.

The CHAIRMAN. Will this amount be reduced?

Dr. ALSBERG. No; I do not think this amount can be reduced. Again, the enforcement of the food and drugs act is just a question of what you want done. If you want us to do a thousand dollars' worth of work, we can do a thousand dollars' worth of work.

The CHAIRMAN. Do you need the whole amount that is suggested?

Dr. ALSBERG. Yes; and it is important.

Mr. HUTCHINSON. You say you can do a thousand dollars' worth of work if you are limited to that amount? Do you mean that you can reduce your amount?

Dr. ALSBERG. We could profitably spend twice as much in enforcing the food and drugs act. It is a question of the vigor and the amount of the enforcement that Congress wants done. That is what it comes to. We are not catching, by any means, all the violations. If we have a larger amount of money we will catch more of them, and the smaller the amount we have the less of them we will catch.

Mr. HUTCHINSON. Four hundred thousand dollars of that goes to salaries alone.

Dr. ALSBERG. Nearly all the money spent in the enforcement of the food and drugs act is, of course, for salaries of chemists. The rest of it consists of travel to court and elsewhere, chemicals, and apparatus, rent in some of the laboratories outside of Washington which are not in Federal buildings—we move them into Federal buildings as fast as we can get accommodations for them—and the payment of expert witnesses in cases where we need to hire outside witnesses. For example, if we try a case like the bleached flour case, or the saccharine case, which was just tried in St. Louis, we sometimes have heavy expenses for outside experts.

Mr. HUTCHINSON. How was that case decided?

Dr. ALSBERG. I am sorry to say that the jury disagreed—seven for the Government and five against—so that we will have to go through that trial once more.

The CHAIRMAN. What do you pay the inspectors?

Dr. ALSBERG. All of their salaries are statutory. That was a mistake on my part when I mentioned inspectors. They are all on the statutory roll. Their salaries do not come out of this fund. The employees who are paid from this fund are chemists, bacteriologists, microscopists, and other scientifically-trained people who do the analytical work.

Mr. HUTCHINSON. I would like a little more information about that saccharine case. What did you try this case on—adulteration?

Dr. ALSBERG. The saccharine case was brought against a chemical company in St. Louis for the shipment of a pound can of saccharine, which was labeled as being a perfect sweetener, healthful, and absolutely harmless. We charged misbranding—not adulteration, because it was saccharine as it purported to be. We charged misbranding on the ground that it was not a perfect sweetener, that it was not

healthful, and that it was not absolutely harmless, and we brought evidence into court to show, as we thought, that if permitted unrestricted use, the quantity which would be consumed by many people would be sufficient to produce harmful effects, those effects being in the main disturbances of digestion, delay of absorption of food in the intestinal tract.

Mr. HUTCHINSON. Does it not produce severe kidney trouble?

Dr. ALSBERG. We have not evidence for that; but people who have kidney trouble will not eliminate it, and it stacks up in their systems, which may be injuriously affected in that way.

The CHAIRMAN. Take up item No. 75.

Dr. ALSBERG. Item 75 is "for investigating the grading, weighing, handling, transportation, and uses of naval stores," and so on.

The CHAIRMAN. Is there anything new in regard to that work?

Dr. ALSBERG. That is the same type of investigational and educational work as we have been carrying on with the industry, teaching them how to produce and handle rosin and turpentine more efficiently.

The CHAIRMAN. Educational work?

Dr. ALSBERG. Yes, educational at this time.

The CHAIRMAN. Has anything new developed?

Dr. ALSBERG. The only thing new at this time is that there has been this year more than ever before an insistant demand on the part of both producers and consumers for regulatory legislation from Congress. These two branches of the industry want the enactment of some legislation by you gentlemen which will be of the type of the grain grades act. The producers feel that the middleman grades the rosin or the turpentine down when he buys it, and grades it up when he sells it to the consumer, which is of course the complaint in the grain industry.

Mr. ANDERSON. The complaint is about the same in all those things?

Dr. ALSBERG. Yes; about the same. The producer and the consumer are both clamoring for legislation. That is the main development. You are likely to hear from them. That is, of course, up to you. We have nothing to do with it.

The CHAIRMAN. Take the next item.

Dr. ALSBERG. The next is item 76:

For the investigation and development of methods of manufacturing insecticides and fungicides, and for investigating chemical problems relating to the composition, action, and application of insecticides and fungicides.

This is the second year we have had this appropriation.

The CHAIRMAN. The first appropriation was made for the fiscal year 1919.

Dr. ALSBERG. Yes; and the money became available so late the first year that very little was done with it for that reason, and considerably less than half of the appropriation was expended. Only about \$10,000 of the appropriation was expended for 1919, and the bulk of that which was expended was spent upon the equipment which we needed to get the work started; so that I am not, at the present moment, able to report any very definite progress, because we have really only just about got started. As a matter of fact, the equipment was ordered in 1919, but owing to conditions which pre-

vailed in the industrial world, some of it has not yet been delivered, so that we are just getting started on that work. I wish I could report something definite, but that is not possible.

Item 77 is the next, "For the study and improvement of methods of dehydrating materials used for food, in cooperation with such persons, associations, or corporations as may be found necessary, and to disseminate information as to the value and suitability of such products for food, \$23,500."

That is a reduction of more than half in the appropriation made last year. That work, I think, has been successful in assisting a number of firms in getting started in this very important business. What is necessary is to carry a portion of the work, which will be partly demonstrational and partly experimental, for a little while longer, in order that we may complete certain investigations which deal, for example, with the best methods of storing, the best methods of handling, and also some of the methods of producing dehydrated products or types we have not produced hitherto. We were not able to cover the whole field of all vegetables and all fruits. This we wish to complete, so that we can round out the work.

The CHAIRMAN. Is it a success?

Dr. ALSBERG. Yes; there have been produced and are being produced to-day most excellent products. There are two or three of the concerns now operating who we feel confident are going to be able to stay in the business and make a success of it.

The CHAIRMAN. Is there a market for the products?

Dr. ALSBERG. They are in process of creating a market.

The CHAIRMAN. Do people take kindly to it?

Dr. ALSBERG. Yes; they do; but you know perfectly well, as a business man, that it is the hardest thing in the world to create a demand for a new food product. It is the same thing as marketing a new breakfast food.

The CHAIRMAN. \$23,500 will be all that you need to carry on this work next year?

Dr. ALSBERG. Yes.

Mr. ANDERSON. Has your work been entirely commercial dehydration?

Dr. ALSBERG. Our work has been entirely commercial, because I do not believe, personally, that small-scale dehydration on the farm, for sale, is a feasible proposition. This is a manufacturing business, and it can not be done by an amateur.

Mr. ANDERSON. When this dehydration proposition came up a year or two ago it seemed to get a new lease of life, somehow or other. We were going to get these dehydration plants scattered all over the country, chasing up and down and dehydrating everything under the sun, apparently. [Laughter.]

Dr. ALSBERG. I think that was a mistaken enthusiasm. It is a commercial business requiring a high degree of skill, in which amateurs can not make uniform products in the way that was proposed.

The CHAIRMAN. You are cooperating with manufacturers?

Dr. ALSBERG. Yes, sir.

The CHAIRMAN. The Government has no plants?

Dr. ALSBERG. We have no plants; no. Last year we installed special machinery, designed or secured by us, in the plants of manufacturers, to see whether it was suitable for certain classes of work;

but we have built no plants and do not propose to build any plants. We do not propose to manufacture commercially except in cooperation with plants that are now operated.

Mr. HUTCHINSON. In 1919 I see that you spent \$128,050 for equipment and materials. You said you had no plants. What was that for?

Dr. ALSBERG. That was largely for material and very little for equipment. That material has been used in the effort to create a market. We have gotten large quantities of the excellent products which we have bought from manufacturers and distributed them widely among teachers of household economics, among hospitals and institutions, to demonstrate their use, in the effort to overcome these difficulties that Mr. Haugen describes.

Mr. HUTCHINSON. You do not give it away? You sell it, do you?

Dr. ALSBERG. We have given most of this away, because it is in very small quantities. In other words, we have tried to conduct to some extent the sort of campaign you would conduct if you were going to put these things on the market. Most of that \$128,000 went to the producing and distribution of that material so as to get people interested in it.

The CHAIRMAN. We will take up the next item.

Dr. ALSBERG. The next item is No. 78, "For the investigation and development of methods of utilizing wool-scouring waste, \$9,000." That is in somewhat the same shape as item 76, in that this was one of those items the money for which became available very late, and of the first appropriation there was only, I think, \$1,500 or so expended the first year.

The CHAIRMAN. What by-products do you get out of it?

Dr. ALSBERG. We have made very good progress, and I would like to show you some samples. I think it might interest you just to see the different types of products. Here is the raw material, here is the refined and the semirefined [handing samples to the committee members].

The CHAIRMAN. In the progress of your experiments do you not make a great deal of fertilizing material?

Dr. ALSBERG. Yes, potash. What we have been working on is recovery of the hundreds of thousands of pounds of potash that are wasted every year. What we wanted to do was to induce the industry to save the wool grease and to manufacture from it at least two products. One is this lanoline, which is the basis of nearly all modern pomades and ointments. It is used where we formerly used lard and lard oil. We have imported a very large quantity of it. The second product is potash. We have had first to make a survey of the plants that were scouring wool in the United States and to find out what they were doing. Having finished the survey we had to begin to develop methods for the recovery of this wool grease. These methods are known in Germany, but they have been kept secret.

There are a great many uses for this material, besides, for ointment. These wool-scouring wastes pollute the rivers. There is a great quantity of material that we hope we may save. The first year we spent a small portion of the money, and last year we did not spend it all either. Last year we spent only a little under \$1,900 because we had to make our survey and get our feet on

the ground. This year we will require the entire fund, if you will be good enough to give it to us.

The CHAIRMAN. For the fiscal year 1919 you only used \$1,900?

Dr. ALSBERG. For 1919 we used \$1,892, to be specific. The remainder, of course, went into the Treasury. There is a possibility here of doing a very useful job for the country in saving this material, of which we import annually more than \$1,000,000 worth, and in saving the potash, of which many hundreds of thousands of pounds are wasted annually.

Mr. HUTCHINSON. Are you experimenting in improving the quality of the goods?

Dr. ALSBERG. At the present time most of the manufacturers are wasting it. They did not know how to save it. There was until within recent years only one concern that was saving it at all, and that concern was doing it very inefficiently but doing it secretly; and the other manufacturers do not know how to handle it to get the most useful products of the highest value.

Mr. HUTCHINSON. That is the point on which you are working?

Dr. ALSBERG. Yes; to save it and put it on our market, and so make it unnecessary for us to import 14,000,000 pounds of it; and, on the side, to get the potash.

The CHAIRMAN. Fourteen million pounds of potash?

Dr. ALSBERG. No; as I recall it, about 14,000,000 pounds of this material—wool grease—is imported annually. We can supply our own needs, and we can also get many hundreds of thousands of pounds of carbonate of potash, which is very valuable. We need every bit of potash we can get.

Mr. HUTCHINSON. We need more than we can get.

The CHAIRMAN. The next is a new item, No. 79:

For investigating the utilization of agricultural raw materials in the production of leather and tanning and leather-making materials and for developing and demonstrating improved methods or processes for producing leather, \$15,000.

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Mr. HUTCHINSON. I see you ask for \$15,000 for leather investigations. Where is that laboratory?

Dr. ALSBERG. In Washington here. That is not for this kind of work. That is for purely investigational work, the best manner of producing leather, which is an agricultural product from two sides; it is an agricultural product in that the hide comes off an animal, and in that the tanning material that goes into it is a vegetable product. Moreover the farmer is the largest consumer of leather, not merely in the form of shoes, but harness and other equipment.

Mr. McKINLEY. Is not that exactly what the Bureau of Standards is organized for?

Dr. ALSBERG. Not according to statements which Dr. Stratton has made to me. It may be that I have not understood Mr. Stratton, but the line of demarcation which he is following is that the Department of Agriculture has essentially to do with production and the Bureau of Standards has essentially to do with service performances of products, which is really an entirely different proposition.

Mr. McKINLEY. This is not production; it is investigation, is it not?

Dr. ALSBERG. It is an investigation of the best manner of production.

Mr. TINCHER. It is an investigation calculated to ascertain the best manner of producing leather?

Dr. ALSBERG. The production of leather. We have been at work on that line for about 20 years and have published a lot of bulletins on the subject. We have recently, for instance, done such work as issuing a bulletin on the method of collecting and preparing sumach. We have been trying to stimulate the production of sumach, which is an important tanning material. We have issued bulletins in cooperation with the Bureau of Animal Industry and the Bureau of Markets on how to take off hides in the country so that they may be taken off in a manner which will not cause them to be discounted as against packers' hides. It is largely owing to the fact that the average man who butchers in a small town in the country does not know how to take off a hide as skillfully as the man who is hired to do it in the packing house. He scores it, cuts it, and salts it inefficiently, and he handles it wrong; in consequence the hide may bring a tremendous discount on the market because it is partly ruined. We have made investigations in cooperation with the Bureau of Plant Industry looking toward the development of new sources of tanning material. Our natural hemlock, oak, and similar material just now is commanding high prices. We are importing large quantities of tanning materials. We have made investigations of the best way of stripping and currying and waterproofing leather; of the best manner of handling leather so that you will get the most wear out of it. I think our investigations are of a different type from those made by the Bureau of Standards.

Mr. HUTCHINSON. You say you have done that work for 20 years?

Dr. ALSBERG. In a small way, but we would like to expand it.

Mr. HUTCHINSON. You want to increase it? This is an entirely new item; of course, you did not reduce your other appropriation by \$15,000?

Dr. ALSBERG. This investigation is one of the investigations that was carried on in a small way under item 65, page 144, which is "for conducting investigations contemplated by the act of May 15, 1862, relating to applications of chemistry to agriculture." It has been done in cooperation with the Bureau of Animal Industry on the hide end of it and the Bureau of Plant Industry on the production of tanning material end of it. The investigation has been carried in a small way under that appropriation. With the increased cost of leather and the scarcity of native-grown tanning materials, we think it would be good business to increase and intensify that particular phase of the work.

The CHAIRMAN. You spoke about the difference in price tanneries paid on hides. What is the difference in prices?

Dr. ALSBERG. I do not recall at the moment.

The CHAIRMAN. There is a wide spread.

Dr. ALSBERG. There is a tremendous difference between the price paid for country hides and the price paid for packers' hides in the same market.

The CHAIRMAN. They pay more for packers' hides than for the small hides?

Dr. ALSBERG. I do not remember.

The CHAIRMAN. Not long ago they were paying 52 cents for the packers' hides and people in the country were getting 8 and 12 cents.

Dr. ALSBERG. I think you are probably right on that.

The CHAIRMAN. Is there that much difference in the value of the hides?

Dr. ALSBERG. I do not think so.

The CHAIRMAN. Have you investigated the matter?

Dr. ALSBERG. I would not like to be quoted offhand because you will realize I can not do all these investigations myself, but, as I recall Mr. Veitch's report to me, he stated that one of the reasons for this difference in prices was the uncertainty in quality of the country hide; that very frequently the country hides were just as good as the packers' hides and very frequently they were very little good at all; and that there entered into it a speculative element which was capitalized by the buyers in Chicago and Kansas City and the big centers to the disadvantage of the country producer of hides. Whether that speculative element is sufficient to account for the tremendous spread, I do not know.

Mr. TINCHER. Is it not true, Doctor, that there never was a time when the percentage of difference between the ordinary hide and the so-called packer hide was so great as it has been since the Government undertook to standardize the price of hides?

Dr. ALSBERG. That is true. I would not venture to say what is the cause of it.

Mr. TINCHER. You are sure of this. It was not caused by the misinformation that you gave the farmers as to how to prepare the skins of animals with 20 years' experience.

Dr. ALSBERG. I do not think so.

The CHAIRMAN. What is the main cause now for the difference in price?

Dr. ALSBERG. The main cause is the difference in quality, but that is not the whole cause.

The CHAIRMAN. What makes the difference in quality? Is the hide taken off a fat steer worth more than the hide from a lean animal?

Dr. ALSBERG. Yes. The difference in quality is due to the manner of taking the hide off (the hide may be scored by the knife), to the improper salting, and to improper curing of the hide after it is taken off. It may also be due to the quality of the animal itself. The main thing is that the average man in the country does not know how to take a hide off without hurting it in some place or other.

The CHAIRMAN. That is the main cause?

Dr. ALSBERG. That, and the other cause that after it is taken off he does not properly salt it and cure it.

Mr. MCKINLEY. If the Chairman will permit, I have been in the hide business. Most of the country hides, cow hides or bull hides, or semi-bull hides, are only worth two-thirds of what the steer hide is. When you speak about 54 cents quoted, or 66 cents, which it went up to, that has reference to the most perfect of steer hides.

The CHAIRMAN. Is there not some difference in the quality of hides outside of curing and taking them off?

Mr. McKINLEY. They are mostly cow hides.

The CHAIRMAN. There is some difference in the hides?

Dr. ALSBERG. I did not understand you. I thought you meant there was a difference in quality between the steer hides taken off in the country and taken off in Chicago. That, of course, is not true. But there are more cow hides and bull hides through the country and they are not worth so much.

Mr. JACOWAY. Will you just state how you ought to take a hide off of an animal?

Dr. ALSBERG. You are getting beyond me.

Mr. McLAUGHLIN of Michigan. That is set forth in the bulletin.

Mr. JACOWAY. Just tell it in a short way.

Dr. ALSBERG. I can not tell you; I do not know myself.

Mr. JACOWAY. You have a bulletin on it?

Dr. ALSBERG. Yes.

Mr. HEFLIN. Is there a difference in the quality of a hide that comes from a well-fed cow than from a poor cow?

Dr. ALSBERG. Yes. There is also a difference according to the climate and according to the breed. Thus furs in the North are of better quality than furs from the South. You get a different quality of leather in tropical countries from that in cold countries.

MORNING SESSION OF THURSDAY, JANUARY 8, 1920—Continued.

Dr. ALSBERG. The question was raised, Mr. Chairman, at the beginning of my statement before you, whether this did not duplicate and interfere with an item of the Bureau of Standards. I am going to be absolutely frank and blunt on the situation, and say that this work is not standardizing work. It began away back about 1902 or 1903, and it has been carried on since that time in a limited way. We began it before the Bureau of Standards undertook any work on leather at all; and if there is any interference between the two bureaus it is that the Bureau of Standards is encroaching, and is operating, so far as this item is concerned, upon a field of work, which, in my judgment, is specifically and definitely a field of work of the Department of Agriculture. I may say, further, that it is not the only instance in which that particular thing occurs. I think the time has come when I should be absolutely blunt on the subject. This is an agricultural material. It is the product of both plant and animal matters. The raw materials are all products of the farm. A larger amount of leather per capita is used by farmers than almost anybody else. They need it not only for their own use but for their harnesses and for other uses, and if there is a subject which is a proper subject of work for the Department of Agriculture, it is the leather industry.

This is not the only encroachment by the Bureau of Standards on work which belongs in the Department of Agriculture. I could give you other instances. I will content myself with only one other instance, inasmuch as it has to do with the Bureau of Chemistry, and that is the encroachment by the Bureau of Standards in the field of the production of sugar and sirups.

Two or three years ago the Bureau of Standards secured an appropriation of \$30,000. I do not know who inspired that appropriation. It makes no difference.

Mr. ANDERSON. They do not need much inspiration, do they?

Dr. ALSBERG. That appropriation is so worded that it gives the Bureau of Standards authority to do anything, in the line of investigation or otherwise, for the production of sugar, excepting possibly the actual cultivation of the cane. It gives them authority to study sugar refining, to standardize sugars, to work on sirups, and to work on molasses—to cover the whole field.

I took it up with the Director of the Bureau of Standards and protested against the proposition, and he stated to me that they had no intention of entering into the field of manufacture. But in his annual report for 1918, the report that appeared in the middle of last winter, in describing the work which the Bureau of Standards is doing on sugar, the text seemed to indicate that Dr. Stratton's assistants have been done some of the things which clearly have to do with the manufacture and production of this food material.

Those are just two instances. I will say to you also very frankly, gentlemen, that one of the reasons for the insertion of this particular item in these estimates was that I might raise this issue of the spheres of the work of the two bureaus, frankly and honestly. We have been doing this work. We would like to continue it. In view of the present high price and the great shortage of leather materials, we would like to extend it; and we think that it is the public interest to do it on a larger scale. That was our main reason.

The other reason was, very frankly, to give me an opportunity to lay this situation frankly before the committee, as I have endeavored to do.

Mr. ANDERSON. We are really glad to find one case where there is an admitted duplication of effort, because we have always understood that such a thing never could occur.

Mr. HUTCHINSON. You said this appropriation for the Bureau of Standards was \$30,000?

Dr. ALSBERG. That is for sugar.

Mr. HUTCHINSON. You said that they could do anything under that? They could not fix the price of sugar, could they?

Dr. ALSBERG. I ought to have qualified that. They could not do that.

Mr. HARRISON. We prepared a memorandum and presented it to the chairman of this committee last year setting forth other lines of work in connection with which the Bureau of Standards had duplicated, or was about to duplicate, the work of the Department of Agriculture.

The CHAIRMAN. I wish you would take that up.

Mr. HARRISON. I do not have the memorandum here this morning, Mr. Chairman, but I shall be glad to bring it up this afternoon.

The CHAIRMAN. I suggested the other day that you present a memorandum showing where these duplications occur.

Mr. HARRISON. I have the memorandum at the office and will bring it up to you this afternoon.

The CHAIRMAN. This is important work. I think you referred to this the other day, at which time we went over it quite thoroughly.

Dr. ALSBERG. Yes. Might I just take a moment or so of your time to give you my views as to a proper division of work between such a bureau as the Bureau of Standards and the Department of Agriculture? I think it is unfortunate that the Bureau of Standards was given the name of the Bureau of Standards, because you can not make standards without going into all kinds of collateral things. Take the matter of grain standards; you can not make grain standards without studying the whole grain industry and also the milling industry. That is perfectly plain, is it not?

The CHAIRMAN. Yes.

Dr. ALSBERG. In the same way that applies to wool and almost anything you want to mention. We are responsible for the enforcement of the food and drugs act. We can not enforce the food and drugs act without taking into consideration what are proper standards of quality and of purity for food products. That is perfectly plain. So we have to do standardization on foods. It is unfortunate that that bureau has this name. My conception of an equitable and efficient division of work between the Department of Agriculture and the Bureau of Standards is that work upon agriculture and industries which draw their raw materials from agriculture is the proper sphere of work for the Department of Agriculture. As for cotton, you can not standardize cotton without taking into consideration the manner in which cotton will behave when you spin it. You can not do anything with cotton seed unless you go into the matter of refining cottonseed oil. I do not think that there ever will be an avoidance of duplication between the Department of Agriculture and such a bureau as the Bureau of Standards until the work is assigned, not by technique or by method, but by fields of work.

In the matter of wool standards, you have to know how the wool will behave in spinning and weaving. The same is true with regard to cotton. You have to know how these materials are produced and for what they are used. If such work is to be done in a separate bureau, then that bureau must cut across every other scientific activity of the Government service.

Mr. PURNELL. Is it your idea that the Department of Agriculture could very properly absorb the Bureau of Standards?

Dr. ALSBERG. No; I do not think that, but I think that the lines of work that are to be done by the Bureau of Standards should be designated once and for all.

The CHAIRMAN. There is work done in the Department of Agriculture that might better be done in the Bureau of Standards?

Dr. ALSBERG. Absolutely. Not merely that, but when I became chief of the Bureau of Chemistry we had in the Bureau of Chemistry a laboratory which was known as the contracts laboratory. In that laboratory were examined the materials bought by the Public Printer, by the Bureau of Printing and Engraving, by the Department of the Interior, by the Supervising Architect—cement, iron, steel, ink, typewriter ribbons, paints, and many others. We were making such examinations.

We had been doing that for many years before the Bureau of Standards. The Bureau of Standards started that work after the Bureau of Chemistry was well in the work.

Now, when I came to the bureau there were two bureaus doing that work. It was not a duplication in a sense, but still it was a duplica-

tion, because the Government had two bureaus doing the same kind of work and had the overhead for both bureaus. It was not a duplication of the work. Thus, the Government Printer thought he could get better results from the Bureau of Standards, and the Bureau of Printing and Engraving thought that it could get better service from the Bureau of Chemistry, so we examined the inks and paper for the Bureau of Printing and Engraving and they examined the inks and papers for the Public Printer. Yet we had a duplication of the overhead, and to that extent it was a duplication. I recommended at that time, and the Secretary of Agriculture and the Secretary of Commerce approved, the transfer of that laboratory. The laboratory and the whole staff were transferred from the Bureau of Chemistry to the Bureau of Standards, as well as the funds which went to the maintenance of the laboratory, an amount of about \$26,000. The men and those funds were taken off of our roll and transferred to the Bureau of Standards.

The CHAIRMAN. In reality there is not a duplication of the work, but the work is done by two different organizations?

Dr. ALSBERG. Yes, sir; that is true.

The CHAIRMAN. Could not everything pertaining to the Department of Agriculture go to the Bureau of Chemistry and everything else to the Bureau of Standards? Is it not possible for you and the Bureau of Standards to get together?

Dr. ALSBERG. I have been trying that for five years, Mr. Chairman.

The CHAIRMAN. It is a matter that the committee will have to take up. It is unsatisfactory at the present time, I think, to both Congress and the department.

Dr. ALSBERG. I think that is what could be done, but we have not succeeded. A conference of Secretary Ousley, Secretary Sweet, Director Stratton, and myself was held, but we did not get very far.

The CHAIRMAN. If you will furnish a memorandum, we will take it up with the other committee.

Dr. ALSBERG. The difficulty, Mr. Chairman, is that the Bureau of Standards and the Department of Agriculture have a different conception of the division of work. The Bureau of Standards' conception of the work is that the Department of Agriculture has to do with production and they have to do with utilization. Now, you must know for what a thing is to be used before you can know how best to produce it. In order to produce the right kind of cotton you have to know its uses; and conversely in order to know how best to use it you must know how it is produced.

Mr. JACOWAY. Is the duplication in the duplication of the overhead for carrying on this work?

Dr. ALSBERG. No; that isn't necessarily true. That was true of the contracts work, but I do not believe it is true with regard to the other work. I believe there has been direct duplication in some of it.

Mr. JACOWAY. The same is true with regard to cotton?

Dr. ALSBERG. I believe there is a direct duplication in the sugar work. It isn't in the matter of the overhead. That is where we do routine work, merely analyze samples. It does not make much difference whether the analysis of 2,500 samples is made in one laboratory and 2,500 are analyzed in another laboratory or whether

5,000 samples are all analyzed in one laboratory. It is not a duplication such as if the samples were analyzed in both laboratories.

The CHAIRMAN. Is there anything else?

Dr. ALSBERG. I think that covers the whole matter.

The CHAIRMAN. Thank you very much, Dr. Alsberg.

(The committee therefore proceeded to take up another matter.)

Activities under lump-fund items, Bureau of Chemistry.

Project.	Allotment, 1920.	Estimate, 1921.	Increase.
Agricultural investigations:			
(a) Administration.....	\$800	\$800	
(b) Fruit and vegetable utilization.....	4,500	4,500	
(c) Leather and paper investigations.....	13,620	13,620	
(d) Stock food investigations.....	1,500	1,500	
(e) Plant chemical investigations.....	14,510	14,510	
(f) Straw gas utilization.....	1,500	1,500	
(g) Protein investigations.....	1,200	1,200	
(h) Corn-cob utilization.....	4,740	4,740	
	42,400	42,100	
Collaboration with other departments:			
(a) Postoffice fraud order cases.....	6,300	8,000	\$1,700
(b) Work for other departments.....	7,700	42,000	34,300
	14,000	50,000	36,000
Food products for export.....	4,280	4,280	
Poultry and egg investigations.....	45,000	15,000	
Oyster and other shellfish investigations.....	20,000	20,000	
Biological investigation of food and drug products.....	15,000	25,000	10,000
Citrus by-products utilization.....	13,000	13,000	
Color investigations.....	100,000	100,000	
Table sirup investigations.....	12,000	12,000	
Enforcement food and drugs act:			
(a) Administration.....	43,131	43,131	
(b) Prosecuting cases.....	27,000	27,000	
(c) Drug investigations.....	28,010	28,040	
(d) State cooperation.....	9,700	9,700	
(e) Color certification.....	4,740	4,740	
(f) Food control investigations.....	59,820	59,820	
(g) Microbiological investigations.....	22,910	22,910	
(h) Microchemical investigations.....	15,960	15,960	
(i) Stock feed investigations.....	12,150	12,150	
(j) Oils and fats investigations.....	7,980	7,980	
(k) Pharmacognosy investigations.....	8,420	8,420	
(l) Pharmacological investigations.....	5,800	5,800	
(m) Phytochemical investigations.....	6,440	6,440	
(n) Special investigations.....	29,390	29,390	
(o) Water investigations.....	11,540	11,540	
(p) Field regulatory work—			
(1) Eastern district.....	149,440	149,440	
(2) Central district.....	113,100	113,100	
(3) Western district.....	64,660	64,660	
	620,221	620,221	
Naval stores investigations and demonstrations.....	10,000	10,000	
Insecticide investigations.....	25,000	25,000	
Dehydration investigations.....	50,000	23,500	26,500
Wool waste investigations.....	9,000	9,000	
Leather investigations (new).....		15,000	15,000
Total.....	979,901	1,014,401	34,500

¹ Includes \$720 transferred to statutory roll.

² Includes \$15,140 transferred to statutory roll.

³ Decrease. Includes \$1,500 transferred to statutory roll.



COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Thursday, December 18, 1919.

AFTERNOON SESSION.

The committee reassembled at 2 o'clock p. m. pursuant to recess, Hon. Gilbert N. Haugen (chairman) presiding.

BUREAU OF SOILS.

The CHAIRMAN. The committee will come to order.

Mr. HARRISON. Mr. Chairman, we would like to have you hear Prof. Whitney, who will present the estimates of the Bureau of Soils.

The CHAIRMAN. We will be glad to hear you, Doctor.

STATEMENT OF MR. MILTON WHITNEY, CHIEF OF THE
BUREAU OF SOILS, DEPARTMENT OF AGRICULTURE.

Mr. WHITNEY. Mr. Chairman, there are several changes in the statutory roll. We are asking for the transfer of an administrative assistant from the kelp investigation to the statutory roll; the transfer of a soil cartographer from the soil survey investigations; a change in designation from "chief draftsman" to "draftsman," dropping the word "chief"; a change in the designation of "clerk-draftsman" to "draftsman."

Then we are asking for two additional draftsmen, one at \$1,600 and one at \$1,200. These do not change the appropriations except in the case of the two new draftsmen.

The CHAIRMAN. You said one at \$1,200?

Mr. WHITNEY. One at \$1,600 and one at \$1,200. We have to ask for these additional draftsmen in order to keep up with the preparation of our soil survey reports. We have a good deal of State cooperation now that is growing and developing, and the volume of work is getting too large for the office force that we have been depending on.

Under item 32, "for chemical investigations of soil types," we are asking for nothing new and no additional funds.

Under item 33, "for the physical investigations of the important properties of soil," we are asking an increase of \$5,000 for no new work, but simply to enable us to keep up with the volume of work that is now upon us.

Mr. McLAUGHLIN of Michigan. It appears that last year the men employed were eight, at \$10,105. This year it is the same number of men, \$15,320. It looks as if that \$5,000 was not for more work, but for more salaries for the same men.

Mr. WHITNEY. It is for more apparatus and more material.

Mr. McLAUGHLIN of Michigan. I gather, from looking over the table on page 159, that in 1919 there were eight men at salaries aggregating \$10,000, and that next year you will have eight men at salaries amounting to \$15,000. There is a \$5,000 increase.

Mr. WHITNEY. Yes; it was necessary to make some increases in salaries in order to hold the men. These are trained physicists, mechanically trained men, and it is necessary to hold them in competition with outside employment. Now, as a matter of fact, our appropriation is down to a point where we can not get sufficient apparatus or material to do the work that we require.

Mr. McLAUGHLIN of Michigan. But you spoke of additional work and additional apparatus, and for that purpose you wanted \$5,000; but it appears that for the same number of men you are going to pay \$5,000 more and that this increase is for an increase in salaries.

Mr. WHITNEY. The increase in salary has been accomplished. We had to do that during the war. Now we are short of money for expenses, general expenses.

Mr. McLAUGHLIN of Michigan. It is the same thing. If you used the money that was available for other expenses and paid salaries with it, and then make up the fund for other expenses by additional appropriations, it amounts to the same thing as an appropriation for additional salaries.

Mr. WHITNEY. Now, if we try to save money to get material, we lose the men, because we have to appeal to them now to get them to stay.

Mr. McLAUGHLIN of Michigan. It just occurred to me that it would be more nearly correct to say that the money was needed for increase of salaries than to say that it was for additional equipment, apparatus, and for additional activities.

Mr. WHITNEY. It has been caused by an increase in the rate of salaries, but the actual increase that we are asking for is, as we state, to get material.

Mr. McLAUGHLIN of Michigan. Because you have taken the money available for materials and paid it out in salaries?

Mr. WHITNEY. Yes.

Mr. McLAUGHLIN of Michigan. Now you have to replenish your fund by additional appropriations?

Mr. WHITNEY. Yes; but that had been done and it was necessary to do it. These men are highly trained men; many of them come from the navy yards, where they are getting very much higher salaries.

Mr. McLAUGHLIN of Michigan. Suppose the increase should not be given, would you still retain those men with the higher salaries with nothing for them to do?

Mr. WHITNEY. Probably they would leave.

Mr. ANDERSON. But you are only estimating for \$1,780 for equipment and material, according to the table you have here.

Mr. WHITNEY. Yes.

Mr. ANDERSON. Then that \$5,000 can not all be for equipment and material?

Mr. WHITNEY. It is for general expenses. It is for a slight increase in the volume of the work and the money that is necessary to keep up the apparatus and the supplies needed for the making of apparatus and doing the work.

Mr. ANDERSON. You are estimating, according to your estimate here, for \$15,320 in salaries. Is that correct?

Mr. WHITNEY. Yes.

Mr. ANDERSON. Then you are estimating for approximately \$1,950 for supplies and traveling expenses and miscellaneous items.

Mr. WHITNEY. \$17,225.

Mr. ANDERSON. Altogether?

Mr. WHITNEY. Altogether; yes.

Mr. HARRISON. Mr. Anderson, you will note that these tables show actual expenditures in 1919.

Mr. ANDERSON. I understand that. I am not talking about that; I am talking about your estimates for 1921, which show that you were estimating for \$15,320 for salaries, and about \$1,900 for general expenses, including travel expenses, equipment, etc. If that is correct, you can't be asking any increase of \$5,000 for equipment and material.

Mr. HARRISON. The note says:

Additional help is required in the laboratory; more funds are needed to provide for the construction and standardization of instruments.

If you will examine the column showing expenditures in 1919, you will note that two of the employees were temporary. They were not employed throughout the year, and, therefore, they did not receive compensation from this appropriation for the full 12 months. This means that we did not have eight full-time employees last year. I do not know the facts in detail, but I think I am safe in saying that we did not have more than five or six full-time employees on this roll throughout the year. If this is true, the estimates for 1921 contemplate two or three additional full-time employees next year.

The CHAIRMAN. The question is how much is for salaries?

Mr. HARRISON. No part of this increase, so far as I now know, is intended to be used for the payment of increased salaries. The purpose of the increase is indicated in the note, and, according to our information, it is entirely correct.

The CHAIRMAN. It is for increased service?

Mr. HARRISON. It is for increased service.

Mr. WHITNEY. And you will remember also that there is a year that is not mentioned here; the year that intervened between 1919 and 1921. This table gives us a contrast between the fiscal year 1919 and the fiscal year 1921.

Mr. HUTCHINSON. Doctor, have you got the expenditures there for 1920—what you paid for salaries?

Mr. WHITNEY. No; I haven't it with me.

Mr. McLAUGHLIN of Michigan. It seems to me this remains: That they had a certain amount of money for salaries and for the other work; they took several thousand dollars of that and paid it in salaries; they didn't have it for the other work or for the equipment; now they wish an additional \$5,000 to make up for the \$5,000 they took out for equipment and paid for salaries.

Mr. HARRISON. We are operating this year—that is, 1920—on a salary basis which is somewhat higher than that for 1919, but I do not think it is true that we have spent several thousand dollars for increased salaries. I do not have the facts in mind, but I do not believe that the increases we have made aggregate more than \$1,200.

Mr. ANDERSON. The increase here in the proposed estimate is something over \$5,000.

Mr. HARRISON. Perhaps Prof. Whitney can recall the facts about these employees. He may remember, for instance, whether the salary of the scientist in charge of the work was increased last year.

Mr. WHITNEY. Yes; he was increased during the past fiscal year.

The CHAIRMAN. What was the increase?

Mr. WHITNEY. The increase was, as I recall, \$250.

The CHAIRMAN. That is the only increase?

Mr. WHITNEY. No; some of the other scientists were increased.

Mr. HARRISON. As I recall it, Professor, the average increase was less than \$200, so that, even if all the employees had been increased by this amount, which I am sure was not the case, the total sum involved would be only \$1,600 instead of several thousand dollars.

Mr. ANDERSON. The system of bookkeeping here apparently doesn't carry out that condition.

Mr. HARRISON. As I have already explained, these tables are prescribed by the Treasury Department. They have been presented in this form for several years, and the committee has not heretofore objected to them.

Mr. ANDERSON. The committee occasionally has new ideas.

Mr. HARRISON. I am not raising any objection to new ideas, but I am merely trying to explain why these tables do not show what you are apparently endeavoring to get at.

The CHAIRMAN. Mr. Harrison, do you not think that the table should indicate the salaries paid?

Mr. HARRISON. Yes, sir. In fact, I think many improvements could be made in these tables. I think also that many improvements could be made in the phraseology of the appropriation bill. At various times we have sought the opportunity to change some of the phraseology, to simplify it and make it clearer, but usually the suggestion has been made that the changes should be reduced to the minimum because of the difficulty of getting them through on the floor of the House.

The CHAIRMAN. That is true of anything subject to a point of order, but the phraseology could be changed.

Mr. HARRISON. I shall be very glad next year to consult with you about this matter and see if we can not so improve the tables that they will give the committee full and complete information. I realize full well that they are not clear in the present form.

Mr. McLAUGHLIN of Michigan. I haven't the slightest objection to the increase in these salaries. I think in all probability not one of them is getting more money than he ought to have, but the increase asked here is for increase in salaries and not for increase in equipment or for increase of funds to do other work.

Mr. HARRISON. Suppose the salary of one of these men had been increased \$250 the first of January, 1919. This would mean the payment of only \$125 additional during the fiscal year 1919. The full amount of \$250, however, would be paid during the fiscal year 1920, under which we are now working. Our estimates for 1921, of course, are made on the basis of the 1920 appropriation, while these tables compare *estimated* expenditures in 1921 with *actual* expenditures in 1919, leaving out 1920 altogether.

Mr. McLAUGHLIN of Michigan. Now you say that this last column here, 1919—

Mr. HARRISON (interposing), Which closed on June 30 of that year.

Mr. ANDERSON. It is perfectly clear that last year you had \$12,225.

Mr. HARRISON. Yes.

Mr. ANDERSON. If you used all of that for salaries, which you did not, you are asking for an increase in salaries, apparently, according to your figures here, of something like \$3,000.

Mr. WHITNEY. For new men.

Mr. HARRISON. As compared with what we actually expended in 1919.

Mr. ANDERSON. No, that is what your figures were in 1920.

Mr. McLAUGHLIN of Michigan. You had only \$12,225 in 1920, the same amount in 1919, the same amount in 1918, and in 1917; and there was some of that certainly that was used for something besides salaries; so that now you propose to use \$15,320 for salaries which is at least \$3,000 more than you had for all purposes during any year up to the present time. I am not objecting to the increase of salaries, but I do take exception to Dr. Whitney's statement; I think he is in error in saying that the increases were for other objects and not for salaries.

Mr. HARRISON. If you will run down each column, Mr. McLaughlin, I think the situation will be clear. Take the first case. You will see that we paid \$3,500 to one employee in 1919, and that we are estimating for one at the same salary in 1921. The same is true of the next case, involving a salary of \$2,500.

Mr. McLAUGHLIN of Michigan. Wait a minute. Mr. Whitney says that that \$3,500 man has been increased in salary \$250 since 1919.

Mr. HARRISON. I think he was in error if he made that statement. I think the action was taken during the fiscal year 1919, that is, prior to June 30, 1919. If you will go down the line, you will see that we estimate for one new employee at \$1,800. That accounts for \$1,800 of the \$5,000. We had one temporarily employed during 1919 but he has left the service. There was one at \$1,740 in 1919.

Mr. McLAUGHLIN of Michigan. The \$1,740 one is dropped?

Mr. HARRISON. He has gone out of the service.

Mr. McLAUGHLIN of Michigan. Still the increase is \$5,000.

Mr. HARRISON. If you will examine the two columns again, you will see we had one at \$1,500 in 1919. We propose to have two at that salary in 1921, that is, we intend to employ another one at \$1,500 next year. This, with the \$1,800 already referred to, accounts for \$3,300 of the \$5,000.

Mr. McLAUGHLIN of Michigan. Less \$1,740.

Mr. HARRISON. The employee receiving that salary in 1919 was on the rolls only for a short time, perhaps two or three months.

Mr. ANDERSON. Is there any rule as to the amount of time a man can be employed as a temporary employee, designated as a temporary employee?

Mr. HARRISON. The usual period is not to exceed six months. Ordinarily, the Civil Service Commission will not authorize the temporary employment of anyone for a longer period than three months at a time. If the work requires it, however, the Commission will usually authorize the extension of the employment for a further period of three months.

Mr. ANDERSON. Then when it says "temporary" here, it means employment less than six months?

Mr. HARRISON. Yes, sir; in practically all cases.

To return to the tables, you will note that we had one employee at \$1,320 in 1919 and that we estimate for one at the same salary in 1921. The same is true of the \$2,000 and \$1,200 places.

The CHAIRMAN. What does "part time" mean?

Mr. HARRISON. It means that the salary of the employee concerned was paid partly from this appropriation and partly from some other appropriation, depending upon the work upon which he was engaged at various times during the year.

(The following statement is inserted to clarify the foregoing:)

Physical investigations.

Employees.	Estimated, 1921.	Roll for 1920.	Expended, 1919.
Scientist in charge, at \$3,240 and \$3,500.....			1
Scientist in charge, at \$3,500.....	1	1	
Scientist, at \$2,160 and \$2,500.....			1
Scientist, at \$2,500.....	1	1	
Scientist, at \$1,800.....	1		1
Scientist, at \$1,740.....			1
Scientist, at \$1,500.....	2	1	1
Scientist, at \$1,320.....	1	1	1
Instrument maker, at \$1,600 and \$2,000.....			1
Instrument maker, at \$2,000.....	1	1	
Chemical laboratorian, at \$1,000 and \$1,200.....			1
Chemical laboratorian, at \$1,200.....	1	1	
Number.....	8	6	5½
Salaries.....	\$15,320.00	\$12,020.00	\$10,105.53

1 New.

1 month.

1½ months.

1 new.

5½ months.

6 months.

The CHAIRMAN. What is the next item?

Mr. WHITNEY. The next is No. 34, "for exploration and investigation within the United States to determine possible sources of supply of potash, nitrates, and other natural fertilizers." We are asking for \$18,650 additional there.

The CHAIRMAN. Tell us what you can about potash and other fertilizers.

Mr. ANDERSON. Let us have nitrates first.

Mr. WHITNEY. All right. Our own force has been working steadily on the fixation of nitrogen from atmospheric air, using the Haber process and also the silent discharge, the electric spark. We have been cooperating with the War Department. During the war the War Department was our guest at the Arlington Farm. After the cessation of hostilities the War Department organized a nitrogen fixation plant of its own and asked us to become its guests at the American University. That is a research organization that is working particularly on the problems presented by the great plants that they have put up in different parts of the country, and they wanted our force to help them. We were glad to go over with them because they gave us facilities that we could not afford, and we gave them experienced men which they could not otherwise have obtained. Our own force is still working under our direction. We have our own machinery over there, and they have a big testing machine. We are working on the commercial production of ammonia by the Haber process.

Mr. ANDERSON. What is the process at Muscle Shoals?

Mr. WHITNEY. There are two plants in Alabama—the cyanamid plant and the Haber plant. The Haber plant is not in operation. Both departments are using every endeavor to get the method and the equipment down to the best possible point of efficiency. It is very largely a matter of mechanics and of mechanical equipment. The method works very well indeed, but it is very difficult work, because it has to be done under very high pressure.

Mr. ANDERSON. But the stuff that they are prepared to produce at Muscle Shoals is not suitable for fertilizer, is it?

Mr. WHITNEY. You are probably referring to cyanamid. Of course I ought not to speak for the War Department in this matter, but I will tell you that they can produce fixed nitrogen in the form of cyanamid at a very low cost.

Mr. ANDERSON. Cyanamid has to go through another process before it can possibly be used for fertilizer, doesn't it?

Mr. WHITNEY. No, sir; it has been used for a number of years as such in Europe. It is a black and very dusty powder, and is very irritating to work with. It does more or less damage to plants as it drifts over them. It is rather caustic and has not been a very great success. It is not in favor in Europe. Unfortunately it does not lend itself to mixing with acid phosphate, or to being used as a material for mixed fertilizers. Europeans are accustomed to making applications of material in an unmixed form; they commonly do it, but even they object to the use of cyanamid and are not satisfied with it. In this country we very seldom are willing to use the unmixed material. We use the mixed fertilizer to a very large extent.

Mr. ANDERSON. Does the experimentation which you are undertaking now contemplate the utilization of the cyanamid which may be made at Muscle Shoals, or does it not?

Mr. WHITNEY. Yes; it includes that also, to determine what can be done to that cyanamid to put it into a form in which it will be acceptable to our fertilizer manufacturers and to our farmers.

The work we are doing on the Haber process, which is the more extensive of the two, is the perfecting of the method for causing a direct combination between hydrogen and nitrogen gases. It is perfectly possible to do it, but it is a very difficult thing to do on a commercial scale. The War Department has had several parties go abroad to study the English works, to study the French works, and they have also seen the German works. Neither the French nor the English are any further advanced than the United States. Personally, I believe that they are not as far advanced, but that perhaps is a question of country pride.

The German works turned out a considerable amount of fixed nitrogen by the Haber process, but the methods used by them are not thoroughly understood. Apparently there is a great chance for improving the method and making it less dangerous.

The CHAIRMAN. Can it be made commercially practicable?

Mr. WHITNEY. I think it can, Mr. Chairman. We all think it can.

The CHAIRMAN. What is the present cost?

Mr. WHITNEY. The present cost of ammonia varies. In nitrate of soda, which has always been the standard, it is about \$3 a unit of ammonia, and a unit is 20 pounds. In tankage, dried blood, fish scrap, and cottonseed meal, what we call the organic ammoniates, it is from \$6 to \$9 a unit.

The CHAIRMAN. How do they compare with the prewar prices?

Mr. WHITNEY. The price I have given you for nitrate of soda is about 25 per cent higher than the prewar price.

The CHAIRMAN. Where was it obtained before that?

Mr. WHITNEY. From Chile, just where we obtain it now. The prices per unit of ammonia in the organic ammoniates followed very closely the unit price of ammonia in nitrate of soda, but in the middle part of the calendar year 1918, matters were disturbed and instead of them all going along together in order, the ammoniates went up, due in very large part, Mr. Haugen, to their use as feeding stuffs. Cottonseed meal in the past two or three years, tankage, and dried blood, and fish scrap to a less extent, have been used in increasingly large proportion as feeds. When you buy them for fertilizers you are buying them for a cheaper product.

Mr. ANDERSON. With reference to the production of nitrogen, fixed nitrogen, on a commercial scale, I understand that the completion of the Muscle Shoals project with a view to the production of fixed nitrogen in a form suitable for fertilizer would cost in the neighborhood of \$120,000,000, and as a maximum output that plant will produce a return of 5 per cent on \$58,000,000.

Mr. WHITNEY. I would rather not speak for the War Department. That is their responsibility. It has been put upon them by Congress and by the President, and we are doing our best to help them out, but as I tell you, not so much with this cyanamid, which I think you referred to, as to the Haber plant, which appears on the face of it to be a more hopeless problem than the cyanamid plant, but which we think can eventually be made to produce commercial ammonia for fertilizers. It doesn't make any particular difference what the price of the organic ammoniate is, so far as fertilizers are concerned they are going out of use. They are being applied now more and more and will be applied almost exclusively to feeding purposes. The fertilizers that the farmers use must have another source of nitrogen. It is not a question of whether you and I want it or not, it is coming. We are not going to have organic ammoniates, and we have got to reorganize our fertilizer ideas, our fertilizer requirements. We are not going to have the organic forms of ammonia that we have been using in our fertilizers in the past, and we must find something; we have got to provide a form of fixed nitrogen.

The CHAIRMAN. Just one question, Doctor; does the price quoted include the overhead charges and interest account?

Mr. WHITNEY. You mean the price of the ammonia that I gave you?

The CHAIRMAN. Yes.

Mr. WHITNEY. Yes, that is the trade quotation.

The CHAIRMAN. The cost of production, I believe you stated, was \$3 a unit?

Mr. WHITNEY. No, that is not the cost of production; that is the trade price, the market price.

The CHAIRMAN. What is the cost of production?

Mr. WHITNEY. Mr. Haugen, it is a very difficult thing to tell you.

The CHAIRMAN. Can you say approximately?

Mr. WHITNEY. Yes, I will just tell you what the difficulties are: They are waste products, the product from which this ammonia is derived. Take for instance the cottonseed meal; you buy the cotton

seed on the farm; you grind it up and crush it and it goes into oil and meal and hulls and linters.

The CHAIRMAN. I had reference to what is produced at Muscle Shoals.

Mr. WHITNEY. The cost of production of fixed nitrogen?

The CHAIRMAN. Yes.

Mr. WHITNEY. That is a War Department matter, and I would prefer not to discuss that.

The CHAIRMAN. Have you investigated it so that you could state the approximate cost?

Mr. WHITNEY. I have reports from them.

Mr. HUTCHINSON. Doctor, let me help you out. Haven't they abandoned all their Ohio plants and the Muscle Shoals plants? They are not using them, are they?

Mr. WHITNEY. They are not using them now.

Mr. HUTCHINSON. You spoke about cyanamid. You know that cyanamid is sold cheaper than ammonia, don't you?

Mr. WHITNEY. It is the cheapest source of ammonia.

Mr. HUTCHINSON. You spoke about ammoniates. Don't you think that the farmer, if he confines himself to mineral ammonia, will never be very successful? You wouldn't want to advocate that, would you?

Mr. WHITNEY. No; I would personally be very sorry to see the organic ammoniates go out of the fertilizer market, but they are going. They are going into use for feeding purposes.

Mr. HUTCHINSON. I don't think so. I find it entirely different from that. The farmers will pay three times as much for organic ammonia as they will for mineral ammoniates.

Mr. WHITNEY. Certainly they will.

Mr. HUTCHINSON. And they are getting results.

Mr. WHITNEY. They are getting results, yes; but the facts are that in 1913 there was at least 800,000 tons of cottonseed meal used for fertilizers. In 1918 there were only 270,000 tons and the amount is steadily declining.

Mr. HUTCHINSON. And what is your deduction?

Mr. WHITNEY. The ammonia that would otherwise have been supplied by the organic ammoniates has been supplied by the mineral ammoniates.

Mr. HUTCHINSON. Then your production is less, isn't it?

Mr. WHITNEY. You can't say that.

Mr. HUTCHINSON. Your cotton crop is. That is where most of it is used.

Mr. WHITNEY. There is nothing to do about it except to face it.

Mr. HUTCHINSON. I have had some experience in fertilizers. I manufacture them, and my experience is that when you use a certain amount of nitrate of soda, say 200 pounds, that is your limit; when you use 400 pounds, get it 4 per cent or more, then you are going to the extreme and you reduce your production every time.

Mr. WHITNEY. Yes; it would be unfortunate with our system of agriculture to lose the organic ammoniates.

Mr. HUTCHINSON. You speak about cyanamid—that you can't use it. Don't you know that 50 to 100 pounds to the ton of fertilizer is an advantage?

Mr. WHITNEY. Fifty or one hundred pounds, but that is not what they want.

Mr. HUTCHINSON. That is 1 per cent. The biggest part of your goods is not over 2 per cent. That is half.

Mr. WHITNEY. It can be used under those percentages.

Mr. HUTCHINSON. And you can use it to an advantage. Now that is half, so I don't see why you say it can not be used for fertilizer. If we can make cyanamid in this country which we are getting from abroad—I am using it in all my goods from 50 to 100 pounds to the ton, and it is a big advantage. That is all I want to say.

The CHAIRMAN. Tell us about this \$5,500 for the development of phosphate fertilizer investigations?

Mr. WHITNEY. We have been working for a number of years on the preparation of phosphoric acid without the use of sulphuric acid. We tried the electrical method and had success. It is perfectly possible to get the phosphoric acid out of the rock by fusing it up in the electric furnace with coke and lime and silica, but it was a little bit too expensive. It cost to produce it at the time we made the investigations on a semicommercial scale, about 5 cents a pound, and by sulphuric acid it could be made for about 3 or 4 cents a pound; therefore we have been trying to cheapen the cost by using another source of energy, particularly oil fuel, and we have built or rather are building a furnace, on a semicommercial scale, and we are just struggling along. We haven't the funds to put in as much as we would like into this semicommercial type of investigation.

Mr. McLAUGHLIN of Michigan. Where is this furnace located?

Mr. WHITNEY. At Arlington Farm. We have had to take down our electrical furnace. We hadn't money enough to keep both operations going. We are asking for a larger appropriation so that we will be freer to do work of this kind.

Mr. McLAUGHLIN of Michigan. Are you satisfied with the progress you are making?

Mr. WHITNEY. Yes, sir; we are getting very good results. The fertilizer people are watching the results with a good deal of interest.

Mr. HUTCHINSON. How are you getting along with that development? That seems to me to be the best thing I know of in the way of fertilizer, if you can get something to do away with the sulphuric acid.

Mr. WHITNEY. Yes; we can get phosphoric acid without the use of sulphuric acid. It will be in a concentrated form and we can neutralize it with ammonia or with potash, both of which we have in this country.

Mr. HUTCHINSON. Because sulphuric acid does the ground injury, doesn't it?

Mr. WHITNEY. Yes; and there is an unnecessary weight to cart around.

Mr. HUTCHINSON. I think that is one of the biggest advantages. If you can get it so that you can make phosphoric acid without sulphuric acid, you are going to do a great thing for the country.

Mr. WHITNEY. It is perfectly possible. I have a fertilizer that I have had put up as an ideal fertilizer. It is a mixture of potassium phosphate, ammonium phosphate, and ammonium nitrate. Everything is soluble, everything pays its own freight. There are no waste products in it at all, and if it requires the addition of filler you can put it in in the form of peat or anything you want to use. In making a formula with equal parts, say, 4 per cent each of ammonia, phosphoric acid, and potash, you would have to use 80 pounds of filler for 100 pounds of fertilizer. That shows how much

freight you are paying on useless material in transporting fertilizers around the country.

The CHAIRMAN. The question is what will be the expense of extracting it?

Mr. WHITNEY. I was just saying we have got it down to 5 cents a pound, but we should get it down to 3½ or 4 cents, and we think we can get the expense down by using oil fuel instead of the electric current, unless we could get the current from some cheap water power, which no longer exists in this country.

Mr. McLAUGHLIN of Michigan. How long have you been carrying on this experimental work?

Mr. WHITNEY. We carried on the electrical work about one year before the war; then we had to suspend in order to increase work in other directions. Immediately after the armistice we were able to start again working on an oil furnace. That is a very difficult thing, because while it is perfectly possible to do the work, we had to do it—or to show that it could be done—on a semicommercial scale. We have been experimenting with the preheating, and with the scrubbing and the washing of the gases so that we could use them as fuel. That is being worked on and we have had to change our plans. What seemed a simple thing proved to be a difficult thing and we have had to change our plans repeatedly. We have the furnace and we have had several runs with it, but have not yet been able to give it a high-temperature, continuous run, which we will do as soon as we can.

Mr. McLAUGHLIN of Michigan. You say you found it necessary to stop on account of the war? Do you mean at the time we got into the war, April, 1917?

Mr. WHITNEY. Yes.

Mr. McLAUGHLIN of Michigan. How long a period before that time did you take up the work?

Mr. WHITNEY. We had been working on it up to that time, about two years, on the electrical energy side.

The CHAIRMAN. How about the quality of phosphoric acid from the various sources?

Mr. WHITNEY. So far as we know, there is no difference, Mr. Chairman, whether the phosphoric acid comes from bone or whether it comes from rock. Of course if you use bone you have nitrogen as well as phosphoric acid, but the phosphoric acid itself appears to be the same.

The CHAIRMAN. At present they ship the rock in the raw form and it is not being extracted?

Mr. WHITNEY. They ship the rock in the raw material form. They dry it and that is all they do to save the freight. They also pick out the different grades, and they must have only a small amount of lime present; they must have only a small percentage of iron and alumina, or the acid phosphate manufacturer rejects it.

The CHAIRMAN. Your suggestion is to extract it and save the freight on the filler?

Mr. WHITNEY. Extract it on the ground. And not only that, Mr. Chairman, but with this method we can use the waste material that is put on the dumps now. As a matter of fact, we are only using a very small proportion of the rock we mine, because it has to be selected. There is a great deal of the material that goes on

the dump that would yield an ample amount of phosphoric acid. We are very wasteful in our mining of phosphate rock. We send a good deal of rock to Europe and we pay the freight, on this bulky material.

The CHAIRMAN. What is the percentage of waste or worthless material?

Mr. WHITNEY. Of the stuff that is actually thrown out that could be used, that contains phosphate?

The CHAIRMAN. Of the rock that has no value?

Mr. WHITNEY. I don't remember the figures. I should say that three-quarters of the phosphoric acid that is mined is left on the dump.

Mr. HUTCHINSON. In other words, Doctor, you mean that that is such a low grade that it wouldn't pay to ship it?

Mr. WHITNEY. It would not pay to ship it.

Mr. HUTCHINSON. It just has a small percentage of phosphoric acid in it?

Mr. WHITNEY. Or it has so much iron and alumina that the manufacturers would not take it.

The CHAIRMAN. Has it enough phosphoric acid in it to pay to extract it?

Mr. WHITNEY. Oh, yes.

The CHAIRMAN. A question has been raised here as to the quality of certain phosphoric acids.

Let us turn to the next item, \$5,660 for potash investigations.

Mr. WHITNEY. The potash situation we are working on as we have heretofore, looking up material and investigating possible sources. We have done a good deal to develop domestic sources of potash in this country, and some of them have been kept up and some of them have not. It has been a very unfortunate period. During the active operations of the war, when there was an embargo on the exportation of European salts, the price went up and encouraged production, and a considerable amount, estimated at about a quarter of what we need in this country, was produced. Unfortunately sufficient care was not taken in the preparation of some of the salts, and borax got in in very large amounts in one locality and did damage in certain sections where large quantities of the material had been used in the drill.

Borax is a natural accompaniment of earthy salts that have accumulated in the way of these deposits. In the deposits of nitrate of soda, in the potash deposits at Searles Lake, in the deposits in Europe—the Strassburg deposits—borax is found with the other salts. It is only a question of the locality, of the character of the rocks from which this material has come, as to how much borax there is present, and there is also the necessity of separating it from the potash. It can be done; it is being done; it is perfectly easy and feasible to do it. It simply was overlooked. We are now getting from Chile what they sell as nitrate of potash, or high potash nitrate, as they call it, which is obtained from the mother liquor after the extraction of the sodium nitrate. It is a residue. It was a trace that was originally there, which they concentrate until they get a product containing from 11 to 17 per cent of potash in the form of nitrate of potash, and about 15 per cent of ammonia, or nitrogen figured as ammonia.

Unfortunately, like all of these natural deposits, especially when you get down to the dregs, or the final residues, there is considerable borax. In this case, this material runs from 1 to 4 per cent of borax.

Mr. McLAUGHLIN of Michigan. That is the Chilean nitrate?

Mr. WHITNEY. In the Chilean residue; not in the nitrate of soda, but in the material that is left after the commercial nitrate of soda has been extracted.

Mr. McLAUGHLIN of Michigan. Then, in that stuff that they shipped to us as potash—

Mr. WHITNEY (interposing). As nitrate of potash.

Mr. McLAUGHLIN of Michigan (continuing). There is from 1 to 4 per cent of borax?

Mr. WHITNEY. From 1 to 4 per cent borax. And unfortunately it is a low-grade potash salt, you see, only 11 per cent; but if that is taken out—if those salts are taken out by refrigeration, by quick chilling, they get a very small trace of borax, but when they prepare the material by simply evaporating the whole residue, then they get these larger amounts. They will have to install refrigerating machines and centrifugal machines, as they have in California, at Searles Lake, and get this out, leaving the final mother liquor containing practically all the borax to be thrown away or used for other purposes. It is a simple operation. It can be done, and they must do it. But we have had to protect the farmers against the possible danger of the stocks that are already here, which we don't want to shut off, because there is a shortage of potash anyway. The German and French supplies haven't yet come over in anything like the volume that we expected.

Mr. McLAUGHLIN of Michigan. If that Chilean product is used here, containing as much borax as that, it had better be shut off, because it is harmful.

Mr. WHITNEY. Mr. McLaughlin, it is not harmful if it is properly used. I have just sent out a letter to the State fertilizer officials, showing that where the percentage of borax is high, if they adjust the amount that they use per acre so that they do not exceed the limits of safety that we show, it is perfectly safe. For example, if they have one-tenth of 1 per cent—which is the limit that we have prescribed, beyond which they have to label the amount of borax present—they can use 2,000 pounds of fertilizer in the drill and have 2 pounds of borax per acre, which is a safe limit. That would be considered a trace. That is all right. Now, when they have 1 per cent of borax present in the fertilizer they can use 200 pounds in the drill and still have 2 pounds of borax per acre. Now, when they broadcast their fertilizer, the limit of safety is still further increased. They can then use five times as much, or 10 pounds per acre. By broadcasting the fertilizer, and with moderate application, the manufacturer can use almost any grade of potash salt and the farmer keep within the limit of safety.

The CHAIRMAN. Then they are necessarily limited in the use of fertilizer?

Mr. WHITNEY. No; not in a way. For instance, with 2 per cent of borax in a mixed fertilizer, which is a very large amount for mixed fertilizer, they could use 500 pounds per acre broadcast. Well, now the average application on general farming lands is not over 200 or 400 pounds to the acre, so that for general farming where the application is not over 400 pounds, the borax content would not cut any figure. But the farmer ought to know so he can protect himself.

Mr. HUTCHINSON. Up in our section we use from 20 to 30 hundred to the acre.

Mr. WHITNEY. Two thousand to 3,000 pounds?

Mr. HUTCHINSON. Two thousand to 3,000 pounds? What are you going to do with that?

Mr. WHITNEY. Of course, that is known now. We couldn't make that limit—we made it just as low as we felt we should.

Mr. HUTCHINSON. The only way you can inform them is through the experiment stations, isn't it? You can under the war power make them put it on the bag now, but the war will probably be over before the goods will be delivered next spring. Then what?

Mr. WHITNEY. I don't know. They are settling this point right now. We have sent this information out to the directors of the State fertilizer control, to the directors of the experiment stations, to all agricultural journals, and to all the county agents, showing them what they will do when this information appears on the bags, just how they can use that fertilizer. That will enable us to use this material and tide over this emergency until we can get straightened out.

Mr. HUTCHINSON. There is no borax in any potash except in Searles Lake, is there? There is none in Nebraska, is there?

Mr. WHITNEY. There is a trace; yes. You can't certify that any earthy salts that are collected in that way will be perfectly free from borax.

Mr. HUTCHINSON. They, on their contracts, guarantee no borax in their goods—the Nebraska people do.

Mr. WHITNEY. I don't think there is a guarantee of the absence of borax in anything that comes from the soil, that has accumulated in that way. Nitrate of soda has it, but in very small amounts.

Mr. McLAUGHLIN of Michigan. As to the Nebraska product, you say there is a trace. How much?

Mr. WHITNEY. I don't know. We haven't investigated. We are making a careful investigation now of all the materials.

Mr. McLAUGHLIN of Michigan. You have made an analysis of some of the Nebraska product, have you?

Mr. WHITNEY. I have some of the results; yes. I don't carry them in mind.

Mr. McLAUGHLIN of Michigan. You don't recall?

Mr. WHITNEY. It is very small.

Mr. CANDLER. Are you giving people everywhere throughout the country information as to where the danger lies with reference to borax and to what extent they can go—beyond which they must not go unless they take the consequences?

Mr. WHITNEY. Yes; and I think inside of a year the whole thing will be straightened out. This is only made necessary by the disastrous effect of the use of Trona potash this year.

Mr. CANDLER. You say 2 pounds to be used in the drill is the limit, and 5 pounds to be used broadcast?

Mr. WHITNEY. Ten pounds broadcast.

Mr. McLAUGHLIN of Michigan. Per acre?

Mr. WHITNEY. Yes.

The CHAIRMAN. There is a way that the borax can be extracted from the potash?

Mr. WHITNEY. Oh, yes; and the companies that are responsible for this are purifying their product now.

The CHAIRMAN. Is the process expensive?

Mr. WHITNEY. Not particularly; no. It is the way they extract it. Instead of evaporating it all down they have got to crystalize it out, preferably by refrigeration—that is, by cooling down suddenly—and your potash separates out, and your borax stays in the mother liquor. Then if you take that out as you do sugar, in a centrifugal machine, it flings off the mother liquor. The borax is in the mother liquor. You have got to keep that away from your valuable salts.

The CHAIRMAN. It can all be treated so as to make it serviceable or valuable?

Mr. WHITNEY. Yes, sir; and they are going to do it.

The CHAIRMAN. Will it be necessary to standardize fertilizers from now on to protect the consumer?

Mr. WHITNEY. It ought to be done.

Mr. McLAUGHLIN of Michigan. There are several sources of potash, including Germany, and we are getting some from the cement factories, some from Nebraska, some from California, and some from kelp?

Mr. WHITNEY. And some from Chile; and that is one of the largest sources we know of, one of the largest that has been developed.

Mr. McLAUGHLIN of Michigan. How much are we getting from other sources? In what proportion is the supply from other sources to Chile?

Mr. WHITNEY. I haven't the figures just now. As I tell you, it has been a very unsettled condition. For a time the kelp plant closed down, the Nebraska plants all closed down, the cement mills closed down. All were afraid of a sudden dumping of this material from Europe. It almost appeared as if they thought that there were millions of tons afloat at the time of the signing of the armistice, and just as soon as the word was given that the bars were down these would be dumped right over into New York. Nothing of the kind happened.

Mr. McLAUGHLIN of Michigan. So that the local production ceased?

Mr. WHITNEY. It ceased, yes, for fear of this European competition. Now they have started up again, but the quantity produced has been very materially cut down by that period of uncertainty.

Mr. McLAUGHLIN of Michigan. Was the amount being produced at the cement factories increasing satisfactorily up to that time?

Mr. WHITNEY. Yes; everything was proceeding satisfactorily.

Mr. HUTCHINSON. Doctor, have you made any inquiry in South America? I understand that there is more potash there than there is in any other country in the world—more than there is in Germany.

Mr. WHITNEY. Yes; in connection with the nitrate of soda deposits.

Mr. HUTCHINSON. You are making investigations there?

Mr. WHITNEY. Yes.

Mr. McLAUGHLIN of Michigan. And from Chile?

Mr. WHITNEY. Yes. Mr. Chairman, we have Dr. Turrentine here, who has charge of the kelp plant and who has developed that work. I would like to have him speak, but I would like first to take up the increase requested for the soil survey.

The CHAIRMAN. Very well.

Mr. WHITNEY. We have asked for an increase of \$33,200 for the soil survey, to provide additional funds to meet the funds that are being appropriated by the States.

Mr. ANDERSON. What States are cooperating with you now, Doctor?

Mr. WHITNEY. Would you like to have me read the list of States?

Mr. ANDERSON. I would like to know what States are cooperating.

Mr. WHITNEY. In 1918 they were Alabama, California, Georgia, Idaho, Indiana, Iowa, Kentucky, Maryland, Minnesota, Mississippi, Missouri, Nebraska, New Jersey, New York, North Carolina, North Dakota, Ohio, Oregon, Pennsylvania, Tennessee, Virginia, Washington, West Virginia, Wisconsin, and Texas.

Mr. McLAUGHLIN of Michigan. Do you have there the amount that that each State contributes?

Mr. WHITNEY. Yes.

Mr. McLAUGHLIN of Michigan. You had better read that and let it go into the record.

Mr. WHITNEY. These figures are correct so far as I am informed. Of course, we have nothing to do with the actual appropriations, the actual expenditure of State funds. They meet the expense of their cooperation and we meet our own. Now, this is a statement that I have received from the States, or where they have not furnished a statement the amount that I have estimated the expenditures on soil-survey work.

Mr. CANDLER. On what ground do you cooperate?

Mr. WHITNEY. We pay our own expenses and they pay theirs, but as nearly as possible we provide an equal number of men and an equal amount of money.

Mr. McLAUGHLIN of Michigan. That was 1918?

Mr. WHITNEY. Yes.

Mr. McLAUGHLIN of Michigan. Have you that for 1919?

Mr. WHITNEY. Yes, sir.

Mr. McLAUGHLIN of Michigan. Wouldn't it be well to put into the record each year?

Mr. WHITNEY. I have also the approximate amount of money spent by the cooperating States since 1900, if you would like it. That is the amount of money that they have spent each year, so far as we are informed, in actual cooperation with the bureau.

Mr. McLAUGHLIN of Michigan. That is all part of the same table?

Mr. WHITNEY. Yes, sir.

Mr. McLAUGHLIN of Michigan. Could it all go in together?

Mr. WHITNEY. If you would care to have it.

The CHAIRMAN. You had better insert the full table. Without objection, it will be done.

(The paper referred to follows:)

Approximate total amount spent by cooperating States for soil surveys, 1900 to 1919, inclusive.

1900.....	\$3,500.00	1911.....	\$34,967.53
1901.....	1,500.00	1912.....	46,631.43
1902.....	1,839.15	1913.....	61,705.57
1903.....	1,748.35	1914.....	60,692.81
1904.....	2,377.57	1915.....	72,068.14
1905.....	422.22	1916.....	47,687.41
1906.....	699.47	1917.....	63,907.68
1907.....	2,010.60	1918.....	96,780.95
1908.....	7,517.94	1919.....	103,314.33
1909.....	10,837.28		
1910.....	24,919.26	Total.....	645,127.69

Funds expended by cooperating States for soil survey work for the years 1918 and 1919.

1918.		1919.	
Alabama.....	\$1, 290. 68	California.....	\$2, 706. 97
California.....	2, 242. 67	Delaware.....	130. 00
Delaware.....		Georgia (approximately)...	10, 700. 00
Georgia.....	9, 400. 00	Idaho.....	499. 63
Idaho.....	767. 80	Iowa.....	37, 057. 32
Indiana.....	3, 031. 00	Kentucky.....	1, 322. 81
Iowa.....	25, 687. 04	Maryland.....	427. 11
Kentucky.....	1, 618. 46	Minnesota.....	672. 15
Maryland.....	349. 94	Mississippi.....	1, 500. 00
Minnesota.....	764. 08	Missouri.....	5, 454. 28
Mississippi.....	2, 250. 00	Nebraska.....	6, 500. 00
Missouri.....	3, 283. 12	New Jersey.....	4, 697. 50
Nebraska.....	6, 500. 00	New York.....	1, 765. 33
New Jersey.....	3, 959. 81	North Carolina.....	4, 022. 98
New York.....	2, 043. 69	North Dakota.....	1, 412. 57
North Carolina.....	9, 696. 16	Ohio.....	1, 722. 22
North Dakota.....	1, 614. 09	Oregon.....	2, 078. 94
Ohio.....	3, 019. 56	Tennessee.....	2, 684. 07
Oregon.....	1, 295. 00	Texas.....	9, 252. 75
Pennsylvania.....	1, 206. 82	West Virginia.....	1, 111. 75
Tennessee.....	1, 548. 82	Wisconsin.....	7, 500. 00
Virginia.....	194. 95	Pennsylvania.....	95. 95
Washington.....	1, 393. 28		
West Virginia.....	689. 16		
Wisconsin.....	7, 779. 09		
Texas.....	2, 423. 68		
Total.....	94, 028. 90	Total.....	103, 314. 33

Mr. ANDERSON. Doctor, I gather from your report that most of the soil survey work is done in the South. What is the reason for that?

Mr. WHITNEY. No. The organization of the soil survey field force is this: The men are working out in the field all the time; many of them have not been in Washington headquarters for years; and as this is all outside work and all surveying work they have to be moved during the cold season into the South; and the only time they can work in the North is during the warm season. So we aim to keep the parties in the Southern States for about four months of the year. If we haven't finished we may keep them a little longer. Now, of course, the area of the Southern States is very much smaller than the area of all the rest of the country, and during these four months we concentrate our people in this area in which work can be done practically every day during the winter months; and as soon as that period is passed and the weather becomes settled in the North, we scatter them to all parts of the United States.

Mr. ANDERSON. That is probably the explanation for the situation which seems to be indicated by your report of the acreage covered in the different States, and I notice—calculating it roughly—it struck me that about one-half of the total acreage that you have already surveyed was in the Southern States, as you have indicated.

Mr. WHITNEY. In the case of Alabama, we have kept the party there—they appropriated \$10,000 a year for six years—and we are just winding up there. We have kept a party there throughout the year to meet their cooperation; but in other cases we are sending men to the North and we use them in the South during that period when they can not work in the North—or, rather, it is the period

when they can't work in the North that we send them south, so that they can continue their work.

Mr. CANDLER. They take advantage of the sunny South to do the work there when they can't work in the North?

The CHAIRMAN. Is preference given to the States that are cooperating with you?

Mr. WHITNEY. Yes; we give them preference.

The CHAIRMAN. I notice you are asking for an addition of \$3,000 each for certain States that cooperate and an additional \$9,000 to encourage work in States where they do not cooperate.

Mr. WHITNEY. Yes. Practically all of the work that we do in the summer time is done in cooperating States.

The CHAIRMAN. Do you not think that States which profit by the work of the department should be made to cooperate or go without the service?

Mr. WHITNEY. That is a question. It would seem to be unwise, because the soil boundaries do not follow State boundaries, and this is a national problem. But you will see that a great many of the States are cooperating.

Mr. CANDLER. That is growing more and more every year, isn't it? States are coming in that haven't cooperated heretofore?

Mr. WHITNEY. Yes. Now, Mr. Chairman, if there are no other questions, I would be glad if you would hear Dr. Turrentine.

The CHAIRMAN. You do not care to comment on the other items?

Mr. WHITNEY. No.

The CHAIRMAN. There is no increase?

Mr. WHITNEY. No.

Mr. McLAUGHLIN of Michigan. If the doctor's statement would consume more than the time remaining until 6 o'clock, hadn't we better take it up to-morrow morning?

Mr. TURRENTINE. My statement will be very short.

The CHAIRMAN. We will hear you now, then.

**STATEMENT OF MR. J. W. TURRENTINE, BUREAU OF SOILS,
IN CHARGE OF THE EXPERIMENTAL KELP-POTASH PLANT
AT SUMMERLAND, CALIF.**

Mr. TURRENTINE. Mr. Chairman, as Prof. Whitney has directed his statement to the general potash situation, I will proceed to the discussion of the situation in regard to the kelp-potash industry.

The American potash situation is still acute. At the time of the original appropriation by Congress for a survey of American potash resources, American farmers were receiving from Germany all the potash that was required and at the very low price of 60 cents per unit, delivered at Atlantic seaports. But on account of the absolute dependence on this foreign source, the American farmer being at the mercy of the foreign producer, it was highly desirable that America produce at least a portion of this potash and to an equivalent degree achieve independence in this respect. The beginning of the European war found us with potash resources surveyed but none developed. But promptly, under the stress of the urgent demands here created, all established sources were developed, the price obtainable sweeping aside all economic considerations. The development reached 25 per cent of normal prewar consumption of potash. The

signing of the armistice and the promise of cheap potash from abroad, and the threat that accumulated stores of foreign potash would be dumped on the American market, prompted all American producers not on a logical economic basis to cease operations and to close down their plants. Then it developed that there would be no heavy importations from Europe, that there was no accumulated supply to be disposed of at bargain prices, and that conditions surrounding foreign production were so changed that potash at prewar cheapness would not be again available, and that the increase in price would be over 100 per cent.

The potash situation in America, therefore, now more than one year after the ending of the war, is by far worse than it was before the war started, with but few American sources operable and but little of the foreign product available. The work done in America is creditable but can not in any sense be regarded as the solution of the American potash problem. Potash sold during the war as high as \$6 per unit, the major part selling at \$4.50 to \$5 per unit.¹ Following the armistice it sold at \$2.25 per unit and now brings \$2.75. The American sources that have survived these fluctuations are, roughly, only the Searles Lake and the Nebraska lakes industries. The former of these, while producing continuously, has suffered grievously through the prejudice arising on account of certain early sales of product which carried injurious quantities of impurities; and the latter lost months of production through months of idleness.

The kelp-potash plants operating profitably at war-time prices could not do so at postwar prices. Not one had developed any by-products or taken any special measures to enhance the economy of production. The maximum tonnage possible was the chief consideration. It was early considered, as had already been predicted, that for normal conditions potash alone could not be gotten profitably from kelp. The acetone plant of the Hercules Powder Co., wherein acetone and various other chemicals were manufactured, likewise closed down with the termination of the war-time demand for acetone. Frequently the Hercules Powder plant is regarded as a potash plant, but it was not a potash plant. Potash was a by-product there. It was an acetone plant.

It was hoped that the results of the work in this experimental plant would be available for use by the various privately owned plants and would enable them to install by-products equipment in accordance with demonstrated plans, and that they would be able to keep going. Unfortunately, this work had not progressed to the point where at that time this was possible. Therefore all of them closed their plants, without the feasibility of the kelp by-products proposed ever having been tested commercially.

The problem which we were to solve resolved itself into three phases: (1) The establishment of the facts relative to the products and by-products which are obtainable from kelp; (2) the development of processes and the design of apparatus for the production of the various products and its assemblage into a plant; and (3) the

¹ Since potash salts as "carriers" vary widely in their respective potash contents, sales are made on the basis of analysis and the price per ton is determined by the amount of actual potash present. Thus a standard basis of comparison and sales is established. For each percentage of potash present the price of so much per ton is asked. Each percentage per ton is spoken of as a "unit," and the price per ton is determined by multiplying the price per "unit" by the number of units present, or the percentage. For example, potash salts quoted at \$3 per unit and analyzing 20 per cent would be sold for \$60 per ton.

production and sale of product. Our plan of procedure prescribed the establishment of a product, the design of apparatus for its production, and its production on the plant scale. That is to say, as soon as it was established that a material was obtainable, apparatus was installed for its production and it was turned out in commercial quantities. The first product was dry kelp, which was followed by kelp char and then by kelp ash, and finally by potash salts of a high grade. These products represented stages in the development of the processes. Each stage has represented a decrease in production costs of the product. Muriate of potash is now being produced at a cost which, with refinements in operation, should show a profit even at the present price of \$2.50 a unit.

That was the price prevailing a short time ago. The last we sold was sold at \$2.70 per unit, and we are now quoting \$2.85 for pure muriate.

Mr. CANDLER. How much is a unit?

Mr. TURRENTINE. A unit is a per cent on a ton basis. It represents 20 pounds of pure potash.

Subsequently the residue or by-product, kelp charcoal, was shown to be a valuable material, and steps were taken immediately to design a process and apparatus and to turn it out in commercial quantities. The output of the plant in this material is yet small, but we have every assurance that the apparatus now being installed will yield this in large quantities. A market for it has already been established at a very advantageous price, indeed. With its aid the cost of production of potash will have been reduced to about \$1 per unit provided the kelp char is sold at 25 cents a pound, a price now quoted for it. This will leave a profit of about \$48 per ton on the carbon itself. That is to say, if the cost of manufacture is placed on the by-product up to the point where its course through the plant is separated from that of the other products, it is able to pay all of those operating expenses and leave a margin of profit besides. The idea being to develop by-products to pay the cost of production of potash, it may be said that this apparently is now accomplished with the one by-product, kelp char, alone, without considering iodine, ammonia, and other things. However, it will be obvious to anyone that to stop the investigation at this point with any number of other important results just within reach would be the height of folly.

I say that because, while it might be possible to produce potash and bleaching carbon (charcoal) at a profit, at present we do not expect the price of potash to stay at \$2.75 or \$3. What we want to do is to get enough by-products to enable us to sell potash under any conditions. It behooves us from every point of view to proceed with the work until we have put ammonia, common salt, and iodine on a production basis and brought that production to the point where they are yielded in salable quantities and a market established for them. When we have done that, we can then present our results to the public and present them in a form which will be a credit to the Government. In their present form they would not carry conviction anywhere and would only reflect discredit upon our organization.

The present year may see production brought to the point illustrated by attached table entitled, "Estimated production of the experimental kelp-potash plant for the year ending June 30, 1920."

TABLE 1.—*Estimated proceeds from sale of products from the experimental kelp-potash plant for the fiscal year ending June 30, 1920.*

Potash, 100 units K_2O , at \$2, \$200 per day, for the year of 300 days.....	\$60, 000
Carbon, $\frac{1}{4}$ ton per day, October to January; $\frac{1}{2}$ ton per day, January to April; 1 ton per day, April to July; average, $\frac{1}{2}$ ton per day for 9 months, at \$500 per ton.....	50, 000
Iodine, 20 pounds per day for 6 months, 3,000 pounds, at \$4.....	12, 000
Total for year.....	122, 000

TABLE 2.—*Estimate of costs, proceeds, and profits obtainable for period, Jan. 1, 1920, to June 30, 1920.*

	Operation costs.			
	Per month.	Tons.	Per ton.	Per unit K_2O .
Harvesting and unloading.....	\$1, 267. 50	1, 950	\$0. 65	\$0. 48
Drying.....	3, 070. 39	216	14. 23	1. 16
Incinerating.....	684. 45	102	6. 75	. 26
Lixiviating.....	346. 79	102	3. 42	. 13
Total.....	5, 369. 13			2. 03
Carbon treating.....	1, 560. 00	20	78. 00	
Sacks.....	300. 00			
Total.....	7, 229. 13			
Overhead at 25 per cent.....	1, 807. 28			
Total cost of carbon.....	9, 036. 41			
Muriate department.....	1, 984. 32	52	38. 16	. 76
Sacks.....	52. 00			
Total.....	2, 036. 32			
Overhead at 25 per cent.....	509. 08			
Total cost of potash.....	2, 545. 40			
Selling price of carbon, 20 tons, at \$500.....				\$10, 000. 00
Less total cost of carbon.....				9, 036. 41
Profit.....				963. 59
—Profit per ton of carbon, \$48. 18.				
Selling price of muriate, 52 tons at 50 per cent K_2O , 2,500 units K_2O at \$2 per unit.....				5, 200. 00
Less total cost of potash.....				2, 545. 40
Profit.....				2, 654. 60
Profit per ton of muriate of potash, \$51.05.				
Total profit per month.....				3, 618. 19
Total profit for 6 months' period.....				21, 709. 14

In drawing up the estimate presented in Table 2, "Estimates of costs, proceeds, and profits obtainable for period January 1, 1920, to June 30, 1920," the cost of manufacture has been placed on the by-product carbon through those processes where potash and carbon are treated simultaneously. From the point where the two are treated separately each is made to carry its own costs of manufacture.

Mr. ANDERSON. That is somewhat higher than you estimated previously, I think?

Mr. TURRENTINE. Yes; because at that time I was estimating carbon at 15 cents a pound; now we find we can sell it at 25 cents.

I have also given a table here showing what we anticipate will be the results from the next six months of operation—that is from January 1 to July 1, showing what the cost of manufacture will be of those two products, potash and carbon, and what profit we anticipate from them.

Mr. WHITNEY. I would like to say a word of commendation here. During this period of experimentation when we have had to devise everything, all kinds of apparatus, have had to test them and rebuild them, we have actually sold during this period approximately \$80,000 worth of potash. We have turned the money into the Treasury, less the freight charges.

The CHAIRMAN. \$80,000 out of how much of an appropriation?

Mr. WHITNEY. I do not recall the total amount that has been appropriated.

The CHAIRMAN. The net cost, then, was only \$40,000? You say you turned into the Treasury \$80,000, and the expenditure was \$120,000?

Mr. WHITNEY. That runs over two or three years, you understand. It covers all the period of our experimental work. I mean that, during the period when we were experimenting we were actually turning out materials to the value of \$80,000 gross.

Mr. CANDLER. I notice in the note here it says it is estimated that \$100,000 will be realized from the sale of products at this plant for the current fiscal year. For the fiscal year 1921 it is believed that the receipts will more than cover all expenditures, including the heavy overhead now entailed by a large force of chemists, and construction and repair men.

Mr. WHITNEY. That means that we are now on a production basis, but during the time when we were experimenting the expense of course was heavier.

Mr. TURRENTINE. It may be impossible to carry this program to completion on account of the fact that we are now facing a serious lack of funds.

I may explain that the lack of funds is due to the fact that the war-time appropriation—we are still working under the war-time appropriation—makes no provision for the increased cost of labor and materials.

Mr. McLAUGHLIN of Michigan. How much of the war funds did you have?

Mr. HARRISON. Mr. McLaughlin, no allotment was made for this work under the food production act, if that is what you have in mind.

Mr. McLAUGHLIN of Michigan. There was a fund, though, from which this work was supplied.

Mr. HARRISON. An appropriation has been carried in the regular bill for the past two or three years. That is the only fund available for this purpose, so far as I know. I imagine Dr. Turrentine has in mind the fact that the sum provided for the operation of the plant was fixed during the early period of the war and that there has been no addition to it to take care of the increased cost of labor and materials. Is that correct, Doctor?

Mr. TURRENTINE. Yes. To continue operating on our present basis, without any development or enlargement, would leave us a margin of only \$11,000 for miscellaneous supplies and new apparatus. We shall of necessity exceed \$11,000 for new apparatus, which means that we must decrease our operating force materially and correspondingly our results. The wage scale is still going up. We are lagging behind the community right along in the matter of wages, and we are persuading the men to stay in consideration of the

things which go along with a government appointment as part payment. For example, our chief carpenter is being paid only \$5 a day, while other carpenters in the neighborhood are getting \$7 and \$8. The same is true of our mechanics.

We have a serious problem confronting us, and we are now at work on it in order to determine the best policy to pursue which will yield maximum results with minimum expenditures. This handicap will operate to cut down decidedly the show of results which otherwise could be expected from the year's work, and constitutes an important reason why the end of the year will not show results of such a character as to justify the termination of the work.

A prospectus based on results as they stood a month ago is inserted here as illustrating what is now expected as the results to be attained as the outcome of the present stage of these experiments. The conservativeness of the estimates should counterbalance the prophetic nature of the statement. This prospectus may be taken to represent the results expected to be attained during the fiscal year 1920-21. It is confidently believed that by the end of that year, that is by June 30, 1921, results substantially as represented here will have been obtained.

This estimate contemplates the production of only the by-products—salt, iodine, ammonia, and bleaching carbon. In addition, there are combustible gas, kelp oils, pitch, and creosote, which are simultaneously obtainable. Some of these are of demonstrated and all are of potential commercial value.

TABLE 3.—*Prospectus, value of products obtainable from 100 tons per day raw kelp.*

Potassium chloride, 95 per cent:	
2.5 tons=150 units at \$2.....	\$300
(Or 150 units at \$2.50=\$375.)	
(Or 2.5 tons chemical grade at \$250 per ton=\$625.)	
Salt, NaCl, 95 per cent, 1 ton at \$25.....	25
Iodine, resublimed, 20 pounds at \$4.....	80
Ammonia, ammonium sulfate, 95 per cent:	
400 pounds NH ₃ or 1,600 pounds (NH ₄) ₂ SO ₄ at \$4 per hundredweight...	64
(Or aqua ammonia, 26°, at 5 cents=\$60.)	
Bleaching carbon, Norit grade, 1 ton (2,000 pounds) at 25 cents.....	500
Total per day.....	969
25 days per month at \$969.....	24,225
Or, per year.....	290,600

TABLE 4.—*Gross proceeds from sale of products (subject to expense of sale).*

Fiscal year 1917:	
Appropriation.....	\$175,000.00
Returned (not operating and no returns).	
Fiscal year 1918:	
Appropriation (unexpended balance of previous year's appropriation).	
Returned—	
Wet kelp.....	\$622.50
Dry kelp.....	4,036.21
Do.....	9,995.23
Kelp dust, char, and ash.....	1,118.50
Do.....	7,746.61
Do.....	5,640.15
Total.....	29,149.20

Fiscal year 1919:

Appropriation.....	\$127, 600. 00
Returned—	
Dry kelp.....	\$2, 272. 50
Kelp ash.....	5, 469. 45
Do.....	5, 199. 44
Do.....	5, 348. 70
Do.....	5, 307. 27
Do.....	3, 547. 27
Do.....	145. 25
Do.....	1, 861. 48
Total.....	29, 147. 36

Fiscal year 1920:

Appropriation.....	127, 600. 00
Returned—	
Kelp ash.....	2, 532. 00
Muriate.....	3, 663. 00
Do.....	4, 038. 00
Do.....	6, 782. 50
Do.....	5, 400. 00
Total (July–November, inclusive).....	22, 415. 50

Mr. TURRENTINE. By way of résumé:

(1) Results to date show definitely that the successful outcome of experiments is assured, that by-products will be developed which will more than carry the production cost of potash. This will enable kelp potash, then, to come into the market, where freight rates are not prohibitive, in competition with potash from any other source.

(2) With a successful outcome assured, it would be unwise to discontinue the work and lose the credit which is bound to accrue to the Government through the successful prosecution of a problem undertaken in the face of so much criticism and one advertised so widely by its opponents as illogical and uneconomical.

(3) Its continuation from now on will be at a very slight and decreasing expense to the public, the proceeds from this year's production probably being about enough to equal expenditures and those from next year's operation probably more than equaling expenditures. That the enterprise will be self-sustaining within a short period seems assured.

Mr. ANDERSON. You say you have sold this year \$22,000 worth?

Mr. TURRENTINE. Yes.

Mr. ANDERSON. You expect to increase the sales sufficiently in the next six months of the fiscal year to make up the entire cost of your operations for the year?

Mr. TURRENTINE. We have sold only small amounts of carbon up to this time. From now on we expect to be selling carbon in larger quantities, and carbon is worth more than potash.

(4) It should be borne in mind, that at the completion of the work, with the results anticipated, the plant will be on a profitable basis and could be put on the market as a going concern earning a profit, and would yield a price accordingly. If it is sold before all the facts are demonstrated, it would have to be sold as junk, and as such would yield only about a third of what it would yield otherwise. If sold as a going concern, however, it would yield not less than \$100,000.

It is easy to see, therefore, that if we keep going until the work is completed, the net profit to the Government will be greater than if the work were discontinued at the end of the present year.

(5) Since it has been demonstrated that not less than 500,000 tons per annum of raw kelp are available in the vicinity of Summerland, it is to be assumed that when it is demonstrated what profits are obtainable from the treatment of kelp by the process developed here, plants will be established sufficient in capacity to utilize the raw material available. We may with confidence, therefore, look forward to the establishment ultimately of an industry in this part of the State of California which will yield the products obtainable from this quantity of kelp and of an annual value of over \$7,000,000. This estimate does not take into consideration the equally large industry which may be founded additionally on the kelps of Puget Sound and Alaska. The profit to the public, therefore, from the successful outcome of these experiments seems to be beyond question, and certainly would seem to justify a continuation of the slight net expense to the public now being incurred in this work.

Mr. HUTCHINSON. Doctor, you spoke about the prospects of the future. Kelp is grown along the coast, isn't it?

Mr. TURRENTINE. Yes, sir.

Mr. HUTCHINSON. About how deep in the water?

Mr. TURRENTINE. Kelp grows in about 40 feet of water, but it grows to a length of 150 feet. It grows up to the surface and then it is held up in the water and lies on the surface in large tangled masses.

Mr. HUTCHINSON. You mean it grows from the shore out to 40 feet of water?

Mr. TURRENTINE. No; it grows on the water in 40 feet of water.

Mr. HUTCHINSON. It grows where the water is 10 feet deep, does it?

Mr. TURRENTINE. A little of it grows in 10 feet of water, but the tide, you see, would uncover it.

Mr. HUTCHINSON. How far out in the ocean does it grow?

Mr. TURRENTINE. It varies from half a mile to 3 miles. The position of the kelp is determined by the bottom of the ocean. Where you have rocks, a rocky bottom, or boulders, something for the kelp to fasten to, you will find it growing; otherwise you do not.

Mr. HUTCHINSON. How deep is the deepest part where it grows? Is it over 40 feet?

Mr. TURRENTINE. Yes, considerably over 40 feet. Kelp has been observed under water 100 feet deep.

Mr. HUTCHINSON. And you think it is unlimited?

Mr. TURRENTINE. No; it is not unlimited, but it is inexhaustible in the sense that it grows right back after you cut it.

Mr. HUTCHINSON. If you cut it down, how long does it take before it grows up again?

Mr. TURRENTINE. We expect a crop every three months; four harvest seasons.

Mr. HUTCHINSON. Haven't the fertilizer manufacturers now abandoned their manufactories out there?

Mr. TURRENTINE. Yes; the Government plant is the only one running.

Mr. HUTCHINSON. That is what I thought. In other words, you can't compete with German potash now, can you? You say you are selling it at \$3?

Mr. TURRENTINE. Yes.

Mr. HUTCHINSON. And we are buying German potash for \$1.80.

Mr. TURRENTINE. Are we?

Mr. HUTCHINSON. I bought a lot of it.

Mr. TURRENTINE. We got \$2.75 for our product all last fall. I haven't any doubt at all but that we can compete with Germany.

Mr. HUTCHINSON. You have no doubt about it?

Mr. TURRENTINE. No.

Mr. HUTCHINSON. Not when it gets down to 70 cents a unit?

Mr. TURRENTINE. I don't think it will ever go to 70 cents.

Mr. HUTCHINSON. Do you suppose you can compete at \$1?

Mr. TURRENTINE. Yes.

Mr. HUTCHINSON. You think you can?

Mr. TURRENTINE. Yes; figuring it as I have indicated here in this statement, our production cost is now \$1, that is, \$1 laid down in the market for potash.

McLAUGHLIN of Michigan. \$1 in California?

Mr. TURRENTINE. No; in Baltimore.

Mr. McLAUGHLIN of Michigan. You can lay it down in Baltimore for \$1?

Mr. TURRENTINE. Yes; figuring it the way we have—figuring the cost of production on the by-products.

Mr. CANDLER. You pay the expenses with the by-products, and your potash is largely profit?

Mr. TURRENTINE. Yes.

Mr. CANDLER. Whatever you get out of that is profit?

Mr. TURRENTINE. Yes.

Mr. McLAUGHLIN of Michigan. What is the freight from your factory to Baltimore?

Mr. TURRENTINE. \$15 a ton in carload lots.

Mr. HARRISON. Doctor, the commercial plants on the coast, I understood, were erected under war conditions and they had a special object in view, namely, to secure products which were urgently needed for war purposes.

Mr. TURRENTINE. Yes.

The CHAIRMAN. How many tons of kelp does it take to product a unit of potash?

Mr. TURRENTINE. A ton of kelp will produce a unit and a half.

The CHAIRMAN. One ton of kelp will?

Mr. TURRENTINE. Yes.

Mr. HUTCHINSON. How many units does a ton of kelp run?

Mr. TURRENTINE. One and a half on the wet basis.

The CHAIRMAN. A unit is 20 pounds?

Mr. TURRENTINE. Yes, sir.

Mr. CANDLER. You cut it and gather it on the surface of the water?

Mr. TURRENTINE. Yes, sir.

Mr. CANDLER. You don't cut it below the water?

Mr. TURRENTINE. We cut it about 5 or 6 feet below the surface of the water.

Mr. CANDLER. And then it grows out and you cut it four times a year?

Mr. TURRENTINE. Yes, sir.

Mr. CANDLER. Cutting doesn't injure the plant at all? It comes right back?

Mr. TURRENTINE. Yes, sir.

Mr. HUTCHINSON. After you prepare this potash, what does it run?

Mr. TURRENTINE. Fifty-five per cent K_2O .

Mr. HUTCHINSON. That is actual potash?

Mr. TURRENTINE. Yes, sir.

The CHAIRMAN. We are very much obliged to you.

(Thereupon, at 5.45 o'clock p. m., the committee adjourned.)

Activities under lump-fund items, Bureau of Soils.

Project.	Allotment, 1920.	Estimate, 1921.	Increase.
Soil chemical investigations:			
(a) Supervision.....	\$3,500	\$3,500	.....
(b) Mineral nature of agriculturally important soils.....	1,500	1,500	.....
(c) Routine microscopic work.....	850	850	.....
(d) Inorganic composition of soils.....	5,600	5,600	.....
(e) Hydrolytic decomposition of soils.....	8,260	8,260	.....
(f) Routine chemical laboratory.....	5,300	5,300	.....
(g) Liming of soils.....	600	600	.....
Total.....	25,610	25,610	.....
Soil physical investigations:			
(a) Supervision.....	3,000	3,000	.....
(b) Designing, standardization, and repair of instruments and apparatus.....	2,965	4,140	\$1,175
(c) Physical examination of soils.....	5,100	6,300	1,200
(d) Soil erosion.....	500	500	.....
(e) Movement of soil solution.....	660	660	.....
(f) Fixation of nitrogen by catalytic processes.....		2,625	2,625
Total.....	12,225	17,225	5,000
Investigations of fertilizer resources:			
(a) Supervision.....	5,000	5,000	.....
(b) Potash industry of the United States—Determination of commercial methods for utilizing the potash in feldspar, alunite, natural brines, cement dust, flue dust, trade wastes, etc., as sources of potash for fertilizer production; production of potash from feldspar and other sources.....	4,000	9,660	5,660
(c) Phosphate industry of the United States—Investigation of the sources, quantity, and production of phosphate rock and its manipulation for the fertilizer industry; extraction of phosphoric acid from natural phosphates; concentration of low-grade phosphates.....	7,000	12,500	5,500
(d) Nitrogenous fertilizers of the United States—Investigation of processes for fixing atmospheric nitrogen; fertilizer value of nitrogenous materials: city and trade wastes.....	10,840	18,340	7,500
(e) Production of raw materials in the United States for fertilizer purposes, including study of soil amendments other than the standard fertilizer materials, such as sulphur, sodium, chloride, lime, manganese, base goods, etc.....	2,500	2,500	.....
(f) Analyses of samples.....	2,000	2,000	.....
Total.....	31,340	50,000	18,660
Soil survey investigations.....	198,200	123,200	35,000
Classification of agricultural lands in forest reserves.....	18,100	18,100	.....
Potash investigations.....	127,600	195,000	67,400
General administrative expenses.....	4,000	4,000	.....
Total.....	417,075	543,135	126,060

¹ Includes \$1,800 transferred to statutory roll.

² Includes \$2,100 transferred to statutory roll.

COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Friday, December 19, 1919.

AFTERNOON SESSION.

The committee met pursuant to recess, Hon. Gilbert N. Haugen (chairman) presiding.

BUREAU OF ENTOMOLOGY.

The CHAIRMAN. The committee will come to order.

Mr. HARRISON. Dr. Howard, Chief of the Bureau of Entomology, is present and is ready to take up the estimates of his bureau.

The CHAIRMAN. We will be pleased to hear you, Dr. Howard.

STATEMENT BY DR. L. O. HOWARD, CHIEF OF THE BUREAU OF ENTOMOLOGY, DEPARTMENT OF AGRICULTURE.

Dr. HOWARD. Under the statutory provisions, Mr. Chairman, there are no changes, except that we are asking for two new clerks of class 4 and two clerks of class 3, and also for an executive clerk, at \$1,980. That is explained in the note under item No. 5. It seems that some time ago the committee was asked to give us some more clerks at the top of the list, and to drop off certain clerks at the bottom of the list, and they responded by dropping off the clerks of the bottom of the list and not putting on those at the top of the list, which left us shorthanded. We are shorthanded now and need the additional clerks here requested.

The CHAIRMAN. You have found it necessary to increase these salaries?

Dr. HOWARD. It is not an increase in salaries; we want to get five more clerks, appointed from the outside if necessary.

The CHAIRMAN. Two more clerks of class 4—

Dr. HOWARD. Two of class 4 and two of class 3.

Mr. ANDERSON. And you ask for one executive assistant, under item 5, do you not, Doctor?

Dr. HOWARD. Yes, sir.

The CHAIRMAN. Under item 2 you are asking to have one chief clerk and an executive assistant at \$2,250 changed to one clerk at \$2,250. That is simply a change in title?

Dr. HOWARD. Yes, sir.

This statutory roll, as explained, is increased by \$8,780, by the addition of new places, and is decreased by \$4,200 by dropping seven

entomological assistants at \$600 each, as indicated in the note under item 21. There is an actual increase of \$4,600 over the amount allowed for 1920, but, as our statutory roll for 1920 was reduced by this sum, there will be no increase. This is explained in the note under item 5.

Mr. Chairman, I will discuss the general expense items, if I may.

Item No. 32, "For investigations of insects affecting deciduous fruits, orchards, vineyards, and nuts, \$103,500."

Mr. McLAUGHLIN of Michigan. There is a proviso that \$9,600 of this sum shall be available for the investigation of pecan insects.

The CHAIRMAN. This is the item on the general investigation of insects affecting deciduous fruits which includes the Japanese beetle?

Mr. HARRISON. Yes, Mr. Chairman; and with your permission we would like to have inserted in the record the supplemental estimate which has been submitted.

The CHAIRMAN. Yes.

Dr. HOWARD. I have a copy of it here so that it will be available in this discussion.

The CHAIRMAN. That goes to the Secretary of the Treasury?

Mr. HARRISON. Yes; to the Secretary of the Treasury and then to the Speaker of the House.

The CHAIRMAN. We will have it inserted.

(The letter of the Secretary, transmitting the supplemental estimate for the control of the Japanese beetle follows:)

DEPARTMENT OF AGRICULTURE,
Washington, December 19, 1919.

THE SECRETARY OF THE TREASURY.

SIR: I have the honor to transmit herewith, for inclusion in the agricultural appropriation bill for the fiscal year 1921, an estimate of an additional appropriation of \$105,000 under the heading "General expenses, Bureau of Entomology," required by this department to meet the emergency caused by the unexpected spread in New Jersey of the Japanese beetle. The current appropriation act carries an item of \$105,780 for the investigation of deciduous fruit insects, of which \$25,000 has been allotted for the purpose of controlling the spread of the Japanese beetle. It is recommended that the latter amount be eliminated from this item (p. 167, item 32, committee print of estimates) and be included in a new paragraph making specific provision for the Japanese beetle control work. For this paragraph the following wording is suggested:

"To meet the emergency caused by the recent and sudden spread of the Japanese beetle in the State of New Jersey, and to provide means for the control and prevention of spread of this insect in that State and to other States, in cooperation with the Federal Horticultural Board, the State of New Jersey and other States concerned and with individuals affected, including the employment of persons and means in the city of Washington and elsewhere, and all other necessary expenses, \$130,000, of which \$30,000 shall be immediately available."

Investigations during the fall of 1918 and the spring of 1919 showed that the Japanese beetle had reproduced itself in enormous numbers and spread over much additional territory in spite of the repressive measures undertaken by the department and the New Jersey authorities. In order to cope with the situation, a supplemental estimate calling for an emergency appropriation of \$70,000 was transmitted to the Congress on August 19, 1919. Only \$45,000 of this amount, however, was made available in the first deficiency bill (Public 73, 66th Cong.), which was approved on November 4, 1919, making a total of \$70,000 for the Japanese beetle suppression work during the fiscal year 1920, a sum insufficient to carry out an adequate program of suppression.

The Japanese beetle, introduced from Japan, has become in this country a serious enemy of many kinds of plants, including orchards, vineyards, truck crops, ornamental plants, various weeds, shade trees, etc. It is now established

in Burlington and Camden counties, N. J., and covers an area, according to present surveys, of about 15,000 acres. Since during most of its life the insect lives as a grub in the ground, and in the adult stage is a very active flying beetle, it is now realized for these and other reasons that its eradication is impracticable. It is extremely important, however, that everything feasible be done to prevent its further spread, and money expended in this work will be a very profitable investment because it will protect other parts of the country from the ravages of the insect and obviate the necessity for considerably larger expenditures in connection with control measures over much greater areas.

It is estimated that, aside from the \$25,000 at present included in the item for deciduous fruit insect investigations, \$105,000 will be required to carry out an effective program of control during the fiscal year 1921 and to conduct the work on an adequate scale during the remainder of the current year. There is much to be done if the beetle is to be held within its present limits. The territory bordering the infested area should be thoroughly scouted to establish its distribution. Food plants of little or no economic importance along roadways and elsewhere should be removed and other plants kept coated with poison. A large barrier band of sprayed or dusted food plants outside the infested area should be maintained and all noneconomic plants in the area destroyed.

The Federal Horticultural Board will establish an adequate quarantine which will provide for the inspection and certification of crops of all kinds in the infested area, and the control work is being, and will continue to be, carried out in cooperation with the New Jersey State Department of Agriculture and with representative citizens of the infested territory.

Respectfully,

D. F. HOUSTON, *Secretary.*

Dr. HOWARD. I would like to have Dr. A. L. Quaintance tell you about this work.

The CHAIRMAN. Very well, Dr. Howard, we will hear Dr. Quaintance.

STATEMENT OF DR. A. L. QUAINANCE, IN CHARGE OF DECIDUOUS FRUIT INSECT INVESTIGATIONS, BUREAU OF ENTOMOLOGY, DEPARTMENT OF AGRICULTURE.

Dr. QUAINANCE. Mr. Chairman, I shall be glad to answer any questions that may be asked me.

The CHAIRMAN. Your statement will be in reference to the estimates submitted for the investigation of deciduous fruit insects and also in reference to the special estimate for the Japanese beetle work?

Dr. QUAINANCE. Yes.

Mr. HARRISON. I may explain, Mr. Chairman, that a portion of this appropriation is now expended for the Japanese beetle work. Several other lines of activity also are conducted under it.

Dr. QUAINANCE. This work covers insect enemies of orchards and small fruits, like the gooseberry, the cranberry, and the currant. Our plan of work is to maintain laboratories in the various fruit regions of the country. The office has laboratories in Connecticut, Delaware, Virginia, Georgia, Florida, Texas, Colorado, California, and Washington State, and in one or two more States.

We have brought to our attention almost every year emergency situations in regard to orchard insects, and we change these laboratories about so as to meet conditions and follow the general principle of putting the work where the principal emergency is.

If there are any questions about any particular investigation or project, I shall be very glad to answer them. Perhaps, if I shall read

some of the investigations which are under way it will be suggestive to the committee.

One of our large projects is the investigation of apple insects, and this is distributed through considerable territory. Wherever the apple is grown to a large extent we have a laboratory, or we have had. We shift these laboratories around from time to time.

In our grape insect investigation we have one laboratory in California, now in Fresno, and one in the northern Ohio grape belt, at Sandusky. In years past we have maintained laboratories in the Chautauqua-Erie grape belt.

Mr. ANDERSON. It strikes me that a year or two ago there was some grape work done in Ohio. I do not remember much about it, but it seems to me we made an appropriation or carried an item a year or two ago on that. Do you remember about that?

Dr. QUAINANCE. That was for an investigation of the grape-berry moth, which, due to a combination of circumstances, was very destructive in northern Ohio. This work is still in progress and has been very successful. We are showing the growers how to use the information that we have obtained so that it will be most effective. The method of treatment is by spraying. We have improved the spraying apparatus and have improved spraying liquids. There has been also a good deal of educational work in connection with the investigation.

Another project is the investigation of nut insects, which is subdivided. Part of the work is done under a special appropriation for pecan insects. That work has headquarters in Florida and in Texas. Work on Northern nut insects has headquarters in West Virginia.

We have a project on orchard insecticides and spraying machinery. There are constantly investigations to be made in regard to insecticides.

Mr. McLAUGHLIN of Michigan. Before you leave the nut proposition: A few days ago there were some gentlemen before us representing the nut industry who recommended a large increase in the appropriation, a part of which was to be used by the Bureau of Plant Industry. Has your work been done in connection with and in cooperation with the Bureau of Plant Industry? This is about the nut business.

Dr. QUAINANCE. Do you refer to the pecan?

Mr. McLAUGHLIN of Michigan. Yes.

Dr. QUAINANCE. Yes; we have been cooperating with the Bureau of Plant Industry. They use our laboratory facilities to some extent, and we use theirs where the work brings us together in the same locality. This work must be taken where the particular troubles appear and where they can be worked out to the best advantage. The Bureau of Plant Industry has been particularly interested in cultural questions and disease questions, and it has been possible to combine our forces in some places.

Mr. McLAUGHLIN of Michigan. What progress are you making?

Dr. QUAINANCE. We have made very good progress. We have worked up the life histories of the principal pecan insects and have published one bulletin on the subject.

We are now testing out insecticides in the Southeast, in Georgia and Florida. We find, I might say, that pecan foliage is very tender,

and we have certain conditions to meet in spraying not usual with orchard trees.

Our work in Texas is of a somewhat different type. The pecan industry there is confined largely to the wild pecan trees in the river bottoms. The trees are often quite large, and we have to develop special means of control. We have not made so much progress on the pecan situation in Texas as in the Southeast, but we are making progress. The item, I think, should be continued. It is useful work and it is appreciated by a growing industry.

Mr. McLAUGHLIN of Michigan. Is there any reason for continuing that pecan appropriation as a separate appropriation? The general wording of that paragraph includes nuts. Why can not the investigations be made as to pecans and all other nuts out of the same money?

Dr. QUAINANCE. That would be advantageous from the administrative standpoint. The present wording necessitates the keeping of separate accounts.

The CHAIRMAN. You keep separate accounts?

Dr. QUAINANCE. Yes, sir.

The CHAIRMAN. You say it would be advantageous—

Dr. QUAINANCE. To eliminate the necessity of keeping separate accounts—bookkeeping accounts.

Mr. McLAUGHLIN of Michigan. Would you spend quite a considerable amount on the pecans if we eliminated that language?

Dr. QUAINANCE. We are spending all that money on pecan insects now, since it is a specific appropriation.

Mr. McLAUGHLIN of Michigan. Would you continue to do that if we combined them?

Dr. QUAINANCE. We would continue that. Our nut insect work in the North is being done under another item.

Mr. McLAUGHLIN of Michigan. Why should there be two items as to nuts? Under which item is it? Which is the other one?

Dr. QUAINANCE. It is being done in connection with the fruit-tree borer work, under a subproject on apple insects, under the general subappropriation for deciduous fruit insects.

Mr. McLAUGHLIN of Michigan. What is the number of it?

Mr. QUAINANCE. The subprojects are not shown in the Book of Estimates. If you have the department "Program of Work," the item will appear there.

Mr. McLAUGHLIN of Michigan. A considerable increase in the appropriation for nuts has been requested, and evidently money is being spent from several different appropriations, or at least from more than one. We would like to know how much money is being spent for this nut business and where and how it is carried.

Mr. HARRISON. There are three items, as I recall it. Two are in the Bureau of Plant Industry, and the other is in the Bureau of Entomology—the one we are now discussing.

The CHAIRMAN. Two in the Bureau of Plant Industry?

Mr. HARRISON. Yes, sir.

Mr. McLAUGHLIN of Michigan. This gentleman says they are using money from another item.

Dr. QUAINANCE. The gentlemen who are working on fruit-tree borers, carried under our apple-tree work, have by reason of their location, opportunity to study hickory nuts and chestnuts, and as

they have occasion they make investigations in near-by States as to imported walnuts, such as English walnuts.

Mr. McLAUGHLIN of Michigan. That is done under this item No. 32?

Dr. QUAINANCE. It is all carried under the subappropriation for deciduous fruit insects, but it is not shown specifically in the Book of Estimates.

Mr. HARRISON. Another item which appears on page 70, item 80, under the Bureau of Plant Industry, relates to the diseases of pecans; and the third provision occurs in item 101, on page 95, for nut culture. You will recall that one proviso under the Bureau of Plant Industry was eliminated last year, when a specific paragraph relating to the improvement of nuts was inserted.

The CHAIRMAN. Why should you have an appropriation in one place for the diseases and one in another place for the culture of the nuts?

Mr. HARRISON. The item in the Bureau of Entomology relates to insects affecting pecans.

Mr. McLAUGHLIN of Michigan. The one in the Bureau of Plant Industry relates to the cultivation.

Mr. HARRISON. The first relates to the diseases of the pecan; that is, the tree diseases, the fungus diseases; and the second to the cultural practices—the cultural work. There were originally three separate provisos in the bill covering the pecan work. One of the provisos was eliminated last year because a new paragraph making specific provisions for work relating to nuts was inserted in the bill.

Mr. McLAUGHLIN of Michigan. What is the number of the item which was inserted last year?

Mr. HARRISON. It is on page 95, item 101.

Mr. McLAUGHLIN of Michigan. Yes; I have that. Where is the other one found?

Mr. HARRISON. On page 70, item 80. Then there is the item we are discussing under the Bureau of Entomology, item 32, on page 167.

Mr. McLAUGHLIN of Michigan. All right.

Mr. RUBEX. While there is a lull, I want to ask a question for information. When I was at home last spring some sort of a bug or animal got on my gooseberry bushes and cleaned them up, and it interfered materially with my gooseberry pie. I am wondering what kind of a bug he was. He was from half an inch to an inch long.

Dr. QUAINANCE. Yes; another imported insect, probably.

Mr. RUBEX. It fed on the leaves and cleaned up the bushes; and it seemed to go all over the community. Every gooseberry bush in the whole community was effected the same way. When the berries got to a certain size they stopped growing and did not mature.

Dr. QUAINANCE. That was the imported currant worm. It is rather easily controlled, if you treat it early in the season, with an arsenical. As the fruit ripens, hellebore is used in order to avoid danger of poisoning the fruit.

The other principal project I wish to mention is that in regard to the Japanese beetle. About 1911, I think, we had introduced into New Jersey what we call the Japanese beetle. The insect in its immature stage is a grub living in the soil. It probably came into this country on soil attached to the roots of some iris

plants imported from Japan. It has spread rapidly and now occupies about 15,000 acres in the counties of Burlington and Camden, N. J. Its injures have established its serious character, and, while we have been working with certain appropriations for its suppression and prevention of spread, it would appear that our appropriation of the present fiscal year is not adequate. Hence an increase is requested in the supplemental estimate to which reference has been made.

Mr. McLAUGHLIN of Michigan. Is that under item 32, on page 167?

Dr. QUAINANCE. It is submitted in the form of a separate special appropriation.

Mr. McLAUGHLIN of Michigan. That special appropriation is for an increase in this appropriation, is it not, No. 32?

Mr. HARRISON. \$25,000 of this appropriation (item 32) now is use for the Japanese beetle work. We are suggesting that that be eliminated and that a special appropriation be made for the Japanese beetle work. The total amount of the estimate is \$105,000. Adding to that \$25,000 of the item for deciduous fruit insects now used for the Japanese beetle work, will make \$130,000 we are asking for the work next year; and we are asking that \$30,000 of the total amount be made available immediately upon the passage of the appropriation bill. For the current fiscal year we have for this work \$25,000 under this item 32, on page 167, together with \$45,000 which became available in the first general deficiency bill, November 4, making \$70,000; and, if you give us the \$30,000 of the amount we are now suggesting, immediately upon the passage of the appropriation bill, we will have a total of \$100,000 this year and an equal amount next year for the Japanese beetle work.

Mr. McLAUGHLIN of Michigan. This suggestion involves the setting up of a new item?

Mr. HARRISON. We are suggesting that you eliminate the \$25,000 now included in the total of \$103,000 in item 32, and transfer that amount to a separate item immediately following the deciduous fruit insect paragraph. The language for the new item is set out in the supplemental estimate.

The CHAIRMAN. You deduct \$25,000 from this \$103,000?

Mr. HARRISON. Yes, sir.

The CHAIRMAN. You add a new item; you add how much?

Mr. HARRISON. We add a new item. I have the language here, Mr. Chairman; shall I read it?

The CHAIRMAN. Yes.

Mr. HARRISON. The language suggested is as follows:

To meet the emergency caused by the recent and sudden spread of the Japanese beetle in the State of New Jersey, and to provide means for the control and prevention of spread of this insect in that State and to other States, in cooperation with the Federal Horticultural Board, the State of New Jersey and other States concerned, and with individuals affected, including the employment of persons and means in the city of Washington and elsewhere, and all other necessary expenses, \$130,000, of which \$30,000 shall be immediately available.

Mr. ANDERSON. Is that a reduction of \$32,000 or \$30,000?

Mr. HARRISON. \$25,000 has been deducted from item 32 and is included in the proposed new item, carrying a total of \$130,000.

This represents an increase of \$105,000 over the estimates, and of \$35,000 over the amount at present available for the Japanese beetle work, \$70,000 having been provided in the first deficiency bill.

The CHAIRMAN. What is the object of the \$130,000?

Mr. HARRISON. For controlling the Japanese beetle. Is that clear to you, Mr. McLaughlin?

Mr. McLAUGHLIN of Michigan. Yes. There are some of the other items, though, that are broad enough to cover the same work.

Mr. HARRISON. Of course, it would be entirely satisfactory to the department if the total amount of item 32 were increased by \$105,000, making \$35,000 of it immediately available. The money would be expended in exactly the same manner.

Mr. ANDERSON. It would be, would it not?

Mr. HARRISON. It would be. We thought the committee would prefer to make provision for the Japanese beetle work in a separate paragraph, but it would be entirely satisfactory to us to have the necessary additional funds included under item 32.

The CHAIRMAN. All right; go on.

Dr. QUAINANCE. This Japanese beetle bids fair to be a pest of importance, and our program is one of repression. Owing to the peculiar life history of the pest, we do not believe it can be eradicated, even though it occurs over only 15,000 acres at this time. It lives for nearly 10 months of the year in the ground, and it would be quite impossible to get the last grub destroyed without destroying all vegetation in the territory. It is a pest of very general feeding habits, attacking weeds, orchard and shade trees, vineyards, truck crops, and especially ornamental plants. We are doing a great deal of clean-up work, cutting back from the roads all food plants which will be attractive to it. We are treating the soil with insecticides in the worst-infested areas. We are using for that, largely, sodium cyanide in water, which kills a large percentage of the grubs. We are catching many of the insects by hand-picking—that is, by the use of nets. We have taken in that way two or three million beetles in the last year. We are maintaining a band of poisoned foliage completely around the area and are trying all methods that we think are likely to hold it in check. I think that indicates, in brief, the status of the work and the importance of the pest.

Mr. McLAUGHLIN of Michigan. Are you doing this work alone or in cooperation?

Dr. QUAINANCE. We are cooperating with the New Jersey authorities, with the New Jersey Department of Agriculture. They are appropriating funds to assist us in the work. The cooperation is very active. We are cooperating with the Federal Horticultural Board in a quarantine of green sweet corn, as to interstate traffic, and with the office of the State entomologist as to intrastate traffic. We hope to hold the pest back until we can find out more about it, develop effective control measures, get its parasites to working, and thus reduce its severity.

Mr. HUTCHINSON. You are cutting down trees, are you not, all the way around it?

Dr. QUAINANCE. Yes; we are cutting out at certain places food plants that are attractive to the beetle.

Mr. HUTCHINSON. Does your method of control leave the farm in a different condition; does it leave the farm in a productive condition?

Mr. QUAINANCE. Oh, yes; we are getting the cooperation of farmers, and they are cleaning up their own places to a large extent.

Mr. HUTCHINSON. These beetles destroy everything in sight, do they not?

Dr. QUAINANCE. They are very destructive to a large list of plants. They get into the tips of the ears of corn especially and are thus likely to be moved out with the corn to market and be distributed. We have special machinery to inspect this corn and certify it.

The CHAIRMAN. How much have you spent, and how much do you want for that?

Dr. QUAINANCE. We have had \$25,000 in our regular appropriation this year. We had an emergency appropriation of \$45,000. We are asking in the supplemental estimate for \$130,000, with \$30,000 of that amount immediately available. Our work is planned on a \$100,000-a-year program. Our present allotment is \$70,000, and we wish \$30,000 immediately available out of the bill under consideration, which will furnish funds needed for the balance of the present fiscal year, and which will leave us \$100,000 for the next fiscal year.

Mr. McLAUGHLIN of Michigan. How long has this pest been known?

Dr. QUAINANCE. Since about 1915. It was discovered in the nursery where it was probably introduced.

Mr. McLAUGHLIN of Michigan. It does not seem to spread very fast.

Dr. QUAINANCE. It has spread rather quickly. It is rapid spreading for an insect like this one to develop from a few individuals that came over to its present abundance and infest some 15,000 acres.

Mr. McLAUGHLIN of Michigan. It has not yet gotten into other States?

Dr. QUAINANCE. It is not in Pennsylvania at this time. It is just across the river from Pennsylvania.

Mr. McLAUGHLIN of Michigan. It has not gotten there?

Dr. QUAINANCE. No; it has not gotten into Pennsylvania yet. It is just across the Delaware River from Pennsylvania. Most of the crops grown in this area are moved into Pennsylvania; to Philadelphia, Pa., and to Camden, N. J.

The CHAIRMAN. What is next?

Dr. QUAINANCE. I have nothing more, sir, I think, to call to your attention.

The CHAIRMAN. Thank you, Dr. Quaintance. You may proceed, Dr. Howard.

Dr. HOWARD. Mr. Chairman, I do not wish to take up the time of the committee with the general work done, but I should like to discuss the increases we have asked for.

Mr. RUBEY. What is the next item where you have no increase?

Dr. HOWARD. The next is item 33, "For investigations of insects affecting cereal and forage crops," for which we ask an increase of \$10,000. That amount is requested in order to further the work

with the alfalfa weevil. Mr. Walton, of my force, is just back from Utah, from the region where the alfalfa weevil occurs, and I will ask him to give the reasons for this increase of \$10,000 for that project.

The CHAIRMAN. We will hear Mr. Walton.

STATEMENT OF MR. W. B. WALTON, IN CHARGE OF CEREAL AND FORAGE INSECT INVESTIGATIONS, BUREAU OF ENTOMOLOGY, DEPARTMENT OF AGRICULTURE.

Mr. WALTON. The alfalfa weevil, Mr. Chairman, is also an introduced or imported pest.

Mr. RUBEY. How long have you had him?

Mr. WALTON. Since about 1904 or 1905.

The CHAIRMAN. How much of an increase do you ask?

Mr. WALTON. \$10,000, for the purpose of extending the work.

More or less efficient means have been evolved for controlling this insect in Utah, southern Idaho, and southwestern Wyoming, and the increase is asked for the especial purpose of perfecting the methods which have been discovered.

Mr. RUBEY. Did he come in through New Jersey?

Mr. WALTON. It is difficult to say through what State he came. He was not discovered until he got to Utah.

Mr. McLAUGHLIN of Michigan. All bugs originate there.

Mr. WALTON. No; some come through Boston occasionally.

It is proposed to use a considerable portion of this increase in appropriation for the purpose of ascertaining more accurately the distribution of this insect. Last year a new infestation was discovered in western Colorado. The weevil had not been known in Colorado before that time. We also have reason to believe that it may be present in southeastern Oregon.

Mr. RUBEY. Does this insect affect the growing crop or the crop after it is cut?

Mr. WALTON. The growing crop.

Mr. RUBEY. Tell us how much damage it does to that. Does it go into a field and destroy the entire field or just part of it, and is its prevalence general over a community?

Mr. WALTON. It never destroys all the alfalfa in a field, but it injures it very seriously—possibly as much as 50 or 75 per cent of the stand in the field. It is a very serious insect pest, indeed.

Mr. ANDERSON. What are the methods of control?

Mr. WALTON. The original methods of control, those which were used first, consisted of the formation of a dust mulch by dragging the field with a brush drag during the hot portion of the year. This dislodged the insects from the alfalfa and ground them into the dust; it cleaned up the bugs, but it often hurt the alfalfa.

The improved method consists of spraying the alfalfa with poisons early in the spring, and this has been found to be a very excellent means of control.

Mr. RUBEY. That does not injure the alfalfa?

Mr. WALTON. Not at all. The method consists of spraying the alfalfa with a diluted solution of arsenate of lead, which is not poisonous to cattle to any extent and will kill the insect.

A portion of the appropriation is for the purpose of conducting, on a larger scale than has been possible heretofore, experiments to

demonstrate thoroughly the effectiveness of this method, and the remainder is for survey work.

Mr. McLAUGHLIN of Michigan. Is the infested area increasing?

Mr. WALTON. It has increased considerably in the past four or five years. As I say, there was a new infestation found in Colorado last year. There are reasons for believing that a large portion of Idaho is involved in this infestation.

Mr. McLAUGHLIN of Michigan. A large portion of the entire State?

Mr. WALTON. A considerable portion of the entire State; yes, sir. The insect has not yet reached the vicinity of the important Snake River irrigation project, where there are very rich alfalfa lands; the State authorities and Federal authorities are cooperating in an effort to keep it away from there.

Mr. ANDERSON. You have no hope of destroying it altogether?

Mr. WALTON. Not altogether.

Mr. ANDERSON. It is simply a question of controlling it?

Mr. WALTON. Exactly.

Mr. McLAUGHLIN of Michigan. Can you give an estimate of the amount of damage it does in each of those States?

Mr. WALTON. That would be a difficult matter to do in dollars and cents.

Mr. McLAUGHLIN of Michigan. You say it sometimes destroys 75 per cent of the crop?

Mr. WALTON. Where no specific treatment is given to the crop.

Mr. McLAUGHLIN of Michigan. To what extent are you able to reduce the loss by the treatment?

Mr. WALTON. Where proper methods are used, the loss is entirely eliminated. We get excellent results and get good crops of alfalfa; as good as or better than before infestation occurred.

Mr. ANDERSON. How expensive is the treatment?

Mr. WALTON. The improved method costs about a dollar an acre.

Mr. McLAUGHLIN of Michigan. Are the States making appropriations for this work?

Mr. WALTON. I believe the State of Idaho is making some appropriation for this work.

Dr. HOWARD. Colorado is about to do so.

Mr. McLAUGHLIN of Michigan. It was first discovered in Utah, and has been there longest, you say? Has not Utah made any contribution to the work?

Dr. HOWARD. The State agricultural experiment station has made some, I know, but I believe they have made no specific appropriation to fight this insect. This is one of the investigations that this committee has authorized which has turned out very successfully. It was a new imported insect and caused a great scare at the time it was discovered. We have gone through all sorts of things and have found remedies that seemed to be good and those that seemed to be better, until we have got hold of a system now which we think will keep the pest in control at a very moderate cost. Our idea is to carry out the experimentation on a larger scale and see whether it will work, and to send men over into Colorado, where it is new, and show them how they can handle it.

The CHAIRMAN. Thank you, Mr. Walton.

STATEMENT OF DR. L. O. HOWARD, CHIEF OF THE BUREAU OF ENTOMOLOGY, DEPARTMENT OF AGRICULTURE—Continued.

Dr. HOWARD. The Secretary of Agriculture has sent through the Treasury Department to you a supplemental estimate for \$500,000 to be used in investigating the newly imported corn borer, about which I think we had hearings last year. We had previously sent in an estimate of \$500,000, but, on account of the adjournment of Congress before action upon the bill, the appropriation, of course, was left out. Then, when the special session convened you put in \$250,000 instead of \$500,000.

The CHAIRMAN. The Senate committee reported \$500,000, but it was not passed on by the Senate.

Dr. HOWARD. An appropriation of \$250,000 was made, but investigation showed that the operations of the corn borer were becoming more dangerous, and the Senate committee was asked to add \$250,000.

The CHAIRMAN. As I recall it, the estimates were originally for much less.

Dr. HOWARD. Originally; yes. Later we asked for the sum of \$500,000 in addition to the appropriation of \$250,000. The Senate, as I say, had the bill then. It passed at the special session of Congress, but, instead of giving us \$500,000, as was provided for in the previous will, which had not passed, we were given \$250,000, and on that appropriation we are working at the present time.

There has been still a further spread of the insect, so we appeared before the Appropriations Committee of the Senate and asked them for an appropriation of \$250,000, to be made immediately available. Before they decided on that, the estimates of the Secretary were put in, and, thinking that that might be added in the general deficiency bill, he made no additional requests of this committee.

Since the Appropriations Committee declined to provide for the corn borer in the deficiency bill, the Secretary now asks for this amount in a supplemental estimate.

The CHAIRMAN. In your opinion, will \$500,000 be sufficient?

Dr. HOWARD. I think it will for the next year's work.

The CHAIRMAN. You are getting along fairly well with the work?

Dr. HOWARD. We can't tell how much we are accomplishing just yet, but we need \$250,000 to be made available for next spring's work.

The CHAIRMAN. \$250,000 of the \$500,000—

Dr. HOWARD. Should be made immediately available in order that we may continue the work. We will have expended practically all of the \$250,000 this year, before the 1st of January, within \$20,000 or \$30,000 of the entire amount.

The CHAIRMAN. You say that \$250,000 will be spent by what time?

Dr. HOWARD. By the 1st of January.

The CHAIRMAN. Of this year?

Dr. HOWARD. This fiscal year.

The CHAIRMAN. It is practically expended now?

Dr. HOWARD. It is practically expended now; yes, sir.

Mr. McLAUGHLIN of Michigan. This corn borer was found first in a very limited area, first in Massachusetts?

Dr. HOWARD. Yes, sir.

Mr. McLAUGHLIN of Michigan. You were not able to confine it to that area, and it spread in all direction; to what extent?

Dr. HOWARD. It spread from southern Massachusetts northward and westward. Owing to the failure of our appropriations last spring, the borer got a start, and it spread during the early summer; and it now extends over an area in eastern Massachusetts of about 1,800 square miles. It has also gone across into New Hampshire and has made its appearance in New York, near Schenectady. It is estimated that it covers an area of 500 or 600 square miles in that locality.

It has been discovered quite recently in two or three other places. It has been discovered in Erie County, N. Y., and Erie County, Pa.

Mr. McLAUGHLIN of Michigan. Are those two counties, in those two States, near together?

Dr. HOWARD. The counties, I believe, are near together but do not adjoin each other across the State line.

The CHAIRMAN. How large an area is infested?

Dr. HOWARD. The area in western New York is approximately 500 square miles, but the infestation is not as serious in that part of the country as it is in Massachusetts.

The CHAIRMAN. How large is the area of infestation in Massachusetts?

Dr. HOWARD. Something over 1,800 square miles.

Mr. McLAUGHLIN of Michigan. That is in addition to the 300 square miles in which it was first found?

Dr. HOWARD. That includes the 300 square miles; that is the entire area of infestation in Massachusetts.

Mr. ANDERSON. Has there been any investigation of this infestation by county and State authorities?

Dr. HOWARD. Yes, sir; there has been a meeting of the commissioners of agriculture of the different States. They have an association, and they held a meeting at Albany last August, and then adjourned to Boston, and had a meeting there also. They looked over the matter and were very much impressed with the seriousness of the situation, and urged an appropriation of \$2,000,000 for the extermination of the corn borer. They believed it could be exterminated with \$2,000,000.

Mr. ANDERSON. I read an article by some commissioner, or member of a committee, or whatever it was, and my impression now is that he thought it was not possible to exterminate the insect. He also thought that possibly the damage done by the insect was not as serious as had been indicated.

Dr. HOWARD. You refer to the article by Mr. Woodbury, of Indiana, who visited the region a month later than this commission. He looked over the matter, and he was rather of the opinion of the experts of the department, that it would be practically impossible to exterminate the insect at this stage of the game and that it would be much better for the Government to find out the exact extent of the outbreak, to make smaller appropriations, and the secretary has asked for \$500,000.

I told the committee last year that it was supposed that this insect had been imported into the southern part of Massachusetts in hemp.

but it has been discovered that it is much more probable that it came in with large shipments of broom corn from Hungary. These shipments of broom corn went to many places, including Massachusetts and New York, and also Kentucky, Illinois, Indiana, Iowa, and some other Western States. We have had no reports of the insect's occurrence in those latter States. It has not yet shown up at every place where the broom corn was sent.

Mr. McLAUGHLIN of Michigan. In what form was that broom corn imported?

Dr. HOWARD. Baled in long stalks, for the purpose of making brooms; and the insect, in all probability in the caterpillar form, was inside of the stalk, where it wasn't noticed.

Mr. McLAUGHLIN of Michigan. Have you learned how it spreads?

Dr. HOWARD. It spreads rapidly, by flight mostly; it also spreads by lighting on vehicles and carriages and being carried from one place to another in that way; it also spreads in seed corn on the cob.

Mr. McLAUGHLIN of Michigan. At what time of the year does it move by flight?

Dr. HOWARD. It moves in Massachusetts twice a year. It moves in June and again in late July and early August. There are two generations in Massachusetts. This year there was only one generation in New York, which was pointed out by Mr. Woodbury in the article to which Mr. Anderson refers.

Mr. McLAUGHLIN of Michigan. What kind of work are you doing?

Dr. HOWARD. We are spending that money as follows:

We are inspecting the corn areas wherever this broom corn was sent—all of the areas in regions to which this original shipment of broom corn was introduced. We are doing very elaborate scouting work for the insect, in order to determine as accurately as possible where it is to be found. In addition to that, we have a selected area of the densest population where it is to be found, making it difficult to combat, and we have chosen 25,000 acres of this to try and see whether it is possible to exterminate it. In some localities it occurs in almost every garden, not only on corn but vegetables of different kinds.

Mr. HARRISON. I have here the supplemental estimate which I can insert in the record, if you desire. It has been transmitted to the House through the Secretary of the Treasury, and is now on the Speaker's table, but it has not yet come to this committee.

The CHAIRMAN. We will be glad to have it.

(The paper referred to follows:)

DEPARTMENT OF AGRICULTURE.

OFFICE OF THE SECRETARY.

Washington, December 12, 1919.

The Honorable the SECRETARY OF THE TREASURY.

SIR: I have the honor to submit herewith an estimate of an additional appropriation required by this department to meet the emergency caused by the unexpected spread of the European corn borer. For this item the following wording is suggested:

"To enable the Secretary of Agriculture to meet the emergency caused by the spread of the European corn borer, and to provide means for the control and prevention of spread of this insect throughout the United States, in cooperation with the States concerned, including employment of persons and means in the city of Washington and elsewhere, and all other necessary expenses, \$500,000, which shall be immediately available."

It is proposed to use this sum for the continuation of the work now under way relating to the investigation and control of the corn borer.

As a result of the studies of the past season, it is believed that the European corn borer was brought into this country in 1908-9 with importation of approximately 10,000 tons of broom corn, chiefly from Hungary. Some hundreds of tons of this imported broom corn were utilized near Boston, and like quantities went to the region in New York where the insect was first discovered in that State, but the bulk of the importations were shipped to St. Louis, Chicago, and New Orleans and other western and southern towns and from these points was widely distributed to local broom factories throughout the Middle West. Some of these shipments have been traced to their destinations but they should all be followed up and located and the districts involved should be given, next season, an intensive inspection to determine possible infestation from such broom corn.

In view of the large number of food plants of the corn borer, of its spread as now known in this country, and of the likelihood that, as a result of surveys which should be made next year, it will prove to be even more widely distributed, it is realized that extermination is probably out of the question. The problem, therefore, is one of determining the area infested and the possibilities of practical control. The funds appropriated by the last Congress are being utilized for these purposes, including the carrying out of experimental control measures over areas sufficiently large to demonstrate the possibilities of practical repression or extermination. The bulk of this work must be done in the late fall and early spring. As now planned and in progress, it will call for the expenditure of all the original appropriation by the end of this calendar year.

It is estimated that at least \$500,000 will be required for the effective prosecution of the work outlined. At least half of this sum should be made immediately available in order to provide for the necessary surveys and the completion, without interruption, of the large control experiments now in progress.

The European corn borer is now known to occur over the entire coastal region of Massachusetts, including Cape Cod and adjacent islands, and in the vicinity of several towns in southern New Hampshire, involving approximately 1,800 square miles. In New York State an infested area of about 800 square miles exists in the Mohawk Valley between Amsterdam and Albany. In western New York an area was recently discovered which now extends over 500 square miles, and this area is being extended as the survey proceeds. The insect also has been discovered in a limited area in Erie County in north-western Pennsylvania.

While the insect is called the corn borer, it infests most annuals, including ornamental plants, common grasses, small grains, and most garden vegetables and weeds—in fact, almost any plant which is not of a hard or woody nature. Corn is its favorite food, however, and in Massachusetts it has been a source of marked injury to sweet and flint corn. The possibilities of damage to the coarser field corns of the West and South remain to be determined.

The fears which have been aroused throughout the United States on account of this pest have led to a wide demand for thoroughgoing control efforts by the Federal Government, in cooperation with the States already invaded by the insect. This demand was emphasized at the meeting of the National Association of Commissioners of Agriculture, held at Albany and Boston on August 28 and 29, when resolutions were passed urging Congress to appropriate \$2,000,000 to carry on the work against the corn borer, the money to be made available for use as rapidly as an effective organization could be developed. In view of the possibilities of damage by the pest and in response to the wide public demand, it seems proper that an appropriation should be made which will enable the department, working in close cooperation with the States concerned, fully to determine the status of the insect as an enemy to corn and other crops, its present distribution, and the possibility of control.

Respectfully,

D. F. HOUSTON, *Secretary.*

Mr. McLAUGHLIN of Michigan. Can you tell us to how destructive the insect is?

Dr. HOWARD. It has not been observed closely except in Massachusetts and in New York. It is a very serious insect. We have not yet been able to determine whether it will be as bad on the field of corn in the West as it is on the sweet corn in the East.

Mr. PURNELL. What action does it have on the corn?

Dr. HOWARD. It bores into the stalks; also into the ears; it weakens the cornstalks and destroys the ears.

Mr. PURNELL. Does it attack when the stalks are young or after the corn matures?

Dr. HOWARD. The caterpillar passes the winter in the old stalks, and when the moth comes out it lays its eggs on the leaves of the corn, before the corn tassels or just about the time that it tassels; it also lays its eggs in the tassels of the corn and on the leaves. The caterpillars hatch out in the tassels and later attack the forming ear; they grow, turn into the chrysalis condition, and then the moth comes out.

Mr. ANDERSON. I would like to call your attention to an article appearing in "The National Grange Monthly," showing how the experts are doing this work. Have you read it?

Dr. HOWARD. No, sir.

Mr. ANDERSON. I should think you would be very much interested.

Dr. HOWARD. I would like to hear it.

Mr. ANDERSON. This is an article appearing in the December, 1919, issue of The National Grange Monthly, and it is headed "The way 'experts' work." It says:

In speaking of the comparative efficiency of Government and private management, Edgar J. Rich cited an instance where, during the corn-borer work of the past year on his own land in Massachusetts, four Government "experts" were sent out, with instructions to destroy all the hollow-stalk weeds, as the latter are supposed to be the nesting places of the pest. It was only a small piece of ground, and the men remained so long that he went out to investigate what was keeping them, only to find that four men armed with small nippers were carefully picking out the hollow-stem weeds and cutting them, making an exceedingly slow process. He remonstrated with them, and asked why they did not take a scythe and cut all the weeds, as there was nothing of value on the piece of ground. The Government "experts" appeared very much shocked at such a proposal, and explained by saying, "If we did that we should destroy a lot of weeds which do not have hollow stems, and our instructions are to destroy only hollow-stem weeds." Mr. Rich figured that one man with a scythe, in less than half a day, could have cleared the entire piece, on which the Government with its "expert" labor expended fully \$50.

Dr. HOWARD. That is not the way the work is done at all. And they have a way of calling laborers which the Government sends out "experts." It is very difficult to get the best class of labor to do the work, but the work is not done in that way at all, Mr. Anderson.

Mr. ANDERSON. I had no idea it was. I simply wanted to call your attention to the article. It is a good story, whether it is true or not.

Dr. HOWARD. Ever since I have been engaged in this work the newspapers have made fun of entomology, not because I happened to be an entomologist, but they have always pictured the entomologist as a queer person with a butterfly net and insects pinned to his hat.

The CHAIRMAN. You might go a little more into detail about the corn borer. This is quite interesting. Do you have hope of ever exterminating it?

Dr. HOWARD. I fear not.

The CHAIRMAN. You think you can restrict it?

Dr. HOWARD. Yes, sir.

The CHAIRMAN. Your activities are being confined to the restricting it?

Dr. HOWARD. In addition to this scouting work, to determine exactly where it is, we have got this large experimental control area of over 25,000 acres of land to see what we can do toward extermination.

The CHAIRMAN. Has it been suggested that the other States quarantine against these States in which the borer prevails?

Dr. HOWARD. A number of States are about to quarantine against the infested sections.

The CHAIRMAN. You say, about; have they taken any action?

Dr. HOWARD. Yes, sir.

Mr. WALTON. New York, Massachusetts, New Hampshire, Illinois, Vermont, the Dominion of Canada, and Florida have all issued quarantines against them. Other States are about to do so. Our State entomologists and State commissioners are greatly exercised about it and are bringing pressure on the legislatures now to establish quarantines against the infested regions.

The CHAIRMAN. Would not that be the proper way of doing it?

Dr. HOWARD. That would be an admirable thing.

The CHAIRMAN. That ought to be impressed upon the State authorities.

Dr. HOWARD. They feel the responsibility very much.

The CHAIRMAN. You have taken it up with the States?

Dr. HOWARD. They have taken it up themselves, and they know it is a serious problem.

Mr. LESHER. In what way does it affect the corn?

Dr. HOWARD. It destroys the ear and it reduces the bearing capacity of the stalk. Those ears that escape the borer in the early summer afterwards may be infested by the second generation of moths. They reduce the corn crop to a very serious extent. We have been advised by European entomologists, for example, that some years ago in portions of Hungary the corn crop was reduced 75 per cent in one year.

Mr. McLAUGHLIN of Michigan. If the corn is shipped in the ear, is the insect easily hidden?

Dr. HOWARD. It may be quite concealed. It may be in the interior, in the stalk, or in the cob, between the grains.

The CHAIRMAN. To what extent are the crops destroyed in the areas which are infested in New York and Massachusetts?

Dr. HOWARD. The different kinds of corn seem to be differently affected.

We have seen some crops of sweet corn, in limited areas in Massachusetts, which were almost totally destroyed. We have seen no destruction of field corn of more than 10 per cent as yet.

The CHAIRMAN. Do they just damage the corn or destroy it entirely?

Dr. HOWARD. They reduce the general yield of corn from 5 to 10 per cent.

Mr. McLAUGHLIN of Michigan. There isn't much shipment of corn-stalks from one locality to another, is there?

Dr. HOWARD. Not much; no, sir.

The CHAIRMAN. How many acres of sweet corn were destroyed?

Dr. HOWARD. In the regions which are most infested they have appeared in small garden patches, as a rule, but in some truck regions possibly three-fourths of an acre.

The CHAIRMAN. Does it operate something like the chinch bug in destroying the crops?

Dr. HOWARD. No; it goes through the field. There may be here and there stalks that are not attacked, and then again it may be that every stalk is attacked.

Mr. HUTCHINSON. Is it anything like the wheat moth?

Dr. HOWARD. No, sir; it is a different insect. It works only on the stalk and in the ear. It does not feed in the grain like the wheat moth.

The CHAIRMAN. Are we to understand that \$500,000 will be adequate?

Dr. HOWARD. That is the best judgment of the experts of the department at the present time.

The CHAIRMAN. That is the lowest amount that you could get along with?

Dr. HOWARD. I don't see how we can do with any less.

Mr. McLAUGHLIN of Michigan. You say a part of the money should be made available before the close of the present fiscal year?

Mr. HARRISON. At least half of it.

Mr. McLAUGHLIN of Michigan. That will leave \$250,000 for the rest of the fiscal year.

Dr. HOWARD. That will leave \$250,000 for the rest of the year. We do this work in the spring and in the autumn. That is the reason we have to have the money before the first of the next fiscal year.

The CHAIRMAN. But you say that the \$250,000 that you now have appropriated has practically been exhausted. This bill will probably not pass and become a law before March. During what time of the year do you do this work?

Dr. HOWARD. There is nothing to be done just at present but to continue our investigations and our scouting work, and we will have enough money left for that.

Mr. McLAUGHLIN of Michigan. Have the States made any appropriations for work along this line in cooperation with you?

Dr. HOWARD. Yes, sir. The State of Massachusetts, when they found our bill could not pass last March, made an appropriation of \$100,000 and turned it over to the bureau, and we worked with Massachusetts. Finally, the State of New York made an appropriation of \$100,000.

Mr. McLAUGHLIN of Michigan. The States did that when they learned that the bill was not going to pass. If the money had come forward from the Government they would not have done anything.

Dr. HOWARD. Mr. McLaughlin, I should have explained that their bills for appropriations were introduced for days before it became evident that our appropriation would fail. They would have passed their bills anyway. I did not mean to create that impression.

Mr. McLAUGHLIN of Michigan. There was \$100,000 appropriated by the State of New York?

Dr. HOWARD. The Massachusetts appropriation was expended absolutely by us. New York expended hers under the direction of the State in consultation with us. They did a tremendous amount of work. They had a pay roll as high as \$12,000 a week at one time.

Mr. McLAUGHLIN of Michigan. How about the outbreak in Indiana?

Dr. HOWARD. There isn't any outbreak in Indiana.

Mr. McLAUGHLIN of Michigan. Did you not make some investigations out there when the scare first started?

Dr. HOWARD. We have investigated the matter in every locality where this shipment of broom corn was supposed to have reached, but in many places no infestation has been discovered. In Massachusetts and New York are the original outbreaks.

Mr. McLAUGHLIN of Michigan. How far do these moths fly?

Dr. HOWARD. They fly at night, and I do not know the exact distance.

Mr. WALTON. The longest single flight observed was about 600 yards at a time, but they make repeated flights, of course.

Dr. HOWARD. Of course, they light on vehicles, and in that way they will be carried a considerable distance. They would be attracted by the light in trains and be carried by the train for some distance.

Mr. RUBEY. I thought we had some means of protecting the Government from importations of infested trees and plants. How were these things brought in?

Dr. HOWARD. We have a Federal law which is being very carefully enforced.

Mr. RUBEY. How did that shipment get past it?

Dr. HOWARD. It was made in 1910, two years before the quarantine law was passed. The quarantine law was passed in 1912.

Mr. LESHER. Is the quarantine law such now as to prevent any other bugs or insects from getting into the United States which will cause us to spend so much money?

Dr. HOWARD. They issue quarantines from time to time, if a European pest is found attacking the crops, which provides that those crops shall not be shipped to this country. We have done that a number of times. I think this country is better protected than almost any other country in the world. At the same time, things will slip in.

Mr. McLAUGHLIN of Michigan. What means do you use to learn of the bugs that are prevalent, so that you may be prepared to protect the United States from them, from any other countries?

Dr. HOWARD. There are economic entomologists all over the world who study these things. We correspond with those people constantly. The economic entomologists are the most mutually helpful men that you can imagine. They forward their publications to one another, and whenever they find a new pest we know about it, and in that way we get the information.

Mr. McLAUGHLIN of Michigan. What success have they had with fighting this corn borer in Europe?

Dr. HOWARD. They have had comparatively little success. The point is this, Mr. McLaughlin, that they grow corn to a relatively slight extent over there. Corn is grown in some few places. It is used for cattle food, but only to a comparatively slight extent as human food. They raise some in southern France, in Italy, and in Hungary. In Transylvania there is a considerable area of corn, and there is some produced in the southeastern part of Russia. It is not so important a crop as in America, and the corn borer hasn't made as much of a stir over there as here, where we grow such an enormous acreage of corn and where we use it to such an extent.

They have studied the insect to some extent in Russia. They studied it there before the war. The remedies which they advised are the ones that we are trying in Massachusetts, upon which we have greatly elaborated.

Mr. McLAUGHLIN of Michigan. Does the insect prevail in each area where corn is grown in Europe?

Dr. HOWARD. Wherever corn is grown this insect usually is found; but, again, the insect is found in regions where no corn is grown. For example, a report has just come from Brussels. Some entomologists began to look around in the field and found this insect in weeds near Brussels. It had not been known to exist there before, but probably has been there all the time.

The next item under which we ask an increase is item 35, "For investigations of insects affecting southern field crops, including insects affecting cotton, tobacco, rice, sugar cane, etc." The increase here is \$78,000, of which \$70,000 is to be applied to experimental work with our recently discovered system of destroying the boll weevil. In 1915 experiments on a small scale in the Delta region of Louisiana showed that there is undoubtedly a good method of poisoning the boll weevil at a comparatively small price which will work in that region. We did not make public the results of that work at once, but continued to increase the size of our experiments until now we find that it can be successfully used at a great saving of cotton on a large scale. The conditions of growing cotton in the Delta region of Mississippi and Louisiana are different from the conditions that exist in other parts of the cotton belt, however, and, encouraged by what we have given out this year about the success in this particular region, planters have already contracted for over 20,000,000 pounds of arsenate of lime and are going to work, probably to the disappointment of some, in applying the same methods under different conditions in other parts of the cotton belt.

We desire now to experiment in parts of the cotton belt where conditions differ from those in the Mississippi Delta. At each of those points we want to spend about \$5,000 in experiments on variations of the methods of this poisoning that will be necessary. The methods consists of dusting the cotton, under conditions of moisture where possible with arsenate of lime, which is a very dry and very flocculent arsenical poison, which adheres to the leaves, and catches the weevils when they come to suck up the moisture on the leaves. Although our success has been very great in the Mississippi Delta, we fear that it will not be as great a success elsewhere if done in the same way. We want to study the different conditions and contrast the methods in other parts of the cotton belt. Only this last summer the State Entomologist of Alabama, one of our former assistants, has tried it out experimentally on a cotton plantation of 210 acres near Montgomery, Ala. He kept 60 acres untouched and poisoned 150 acres, and the result was a saving to the amount of over \$9,000, which shows that a trained man can apply this remedy successfully in an adjoining State, although under somewhat similar conditions, because it was also there in a river bottom. We wish to perfect this method to such an extent that the average planter can follow directions, wherever he may be, and get equally good results.

Mr. McLAUGHLIN of Michigan. That was not a very good result, was it; a saving of only \$9,000?

Dr. HOWARD. That was the result of the first attempt. Of course, we can do much better than that.

Mr. McLAUGHLIN of Michigan. How large an area was it, 150 acres?

Dr. HOWARD. Yes; 150 acres.

Better results have been obtained under the direction of our own men in the Mississippi bottom lands. For instance, on Senator Ransdell's plantation he has successfully used this method, with a very great saving. The method of applying the poison is something we have got to do more work on. We are perfecting dusting machines, in cooperation with the engineers of the Bureau of Public Roads, and we expect to use probably \$16,000 this coming year on the perfecting of those machines.

Mr. McLAUGHLIN of Michigan. Why are you cooperating with the Bureau of Public Roads?

Dr. HOWARD. Because there are mechanical engineers connected with that bureau who can be used for that purpose without additional expense. This is the easiest way for us to get the services of mechanical engineers to help us, and one of their men, Mr. Taylor, has made suggestions in reference to the improvement of these machines that are very valuable indeed.

The CHAIRMAN. Is there some prospect of exterminating the boll weevil?

Dr. HOWARD. No; I do not think there is any prospect of exterminating them, but there is the possibility of killing so many of them that all that are left will be able to do very little damage.

The CHAIRMAN. Will this new method eventually exterminate all of them?

Dr. HOWARD. I doubt it very much. It might possibly do so.

Mr. HUTCHINSON. What is the difference between the pink bollworm and the boll weevil?

Dr. HOWARD. The boll weevil is an insect that came to us through importations of cotton from Mexico more than 20 years ago. It is a hard-backed weevil. The pink bollworm is an insect which has spread all over the world from importations of Egyptian cotton, and is the larva of a moth.

Mr. HUTCHINSON. That is what I thought. The pink bollworm is an entirely different insect.

Mr. McLAUGHLIN of Michigan. The boll weevil and the pink bollworm are two different things.

Mr. HUTCHINSON. The pink bollworm develops into an insect that flies, does it?

Dr. HOWARD. Yes, it flies; it becomes a little moth.

Mr. HUTCHINSON. Where did that come from?

Dr. HOWARD. That insect was brought into Mexico on Egyptian cotton a number of years ago. We have tried to keep it out of this country; some got in, but we have practically annihilated it under the work of the Federal Horticultural Board.

Fifty thousand dollars of this \$78,000 asked for will be used for further experimentation as to the different conditions of the uses of the recently discovered cotton boll weevil remedy. We expect to spend \$16,000 in the further perfection of machinery. That makes \$66,000. The other \$4,000 will be spent for the compensation of traveling inspectors, and so on.

The remaining \$8,000 we wish to devote to further perfection of our field experimentation work on tobacco insects. Members of Congress from the tobacco regions have repeatedly urged an increase of this appropriation for demonstration work and for experimental work on a larger scale.

Mr. McLAUGHLIN of Michigan. That spraying of cotton, I suppose, will reach the point that has been reached in the spraying of fruit trees, and so on, in other States where the people do it themselves.

Dr. HOWARD. They will be obliged to do it if they wish to raise cotton.

Mr. McLAUGHLIN of Michigan. Unless the Government does it for them.

Dr. HOWARD. The Government is not going to do it for them, but to tell them how to do it; that is all.

There are no increases asked for under item 36, "For investigations of insects affecting forests."

The CHAIRMAN. You might state the character of the work done under that.

Dr. HOWARD. That is the general study of insects affecting forests. A large part of this sum is devoted to the study of insects affecting the great pine forests of the West. We are now able to give advice to timber growers, and we are consulted by the Forest Service all the time on these questions.

Mr. RUBEY. The Forest Service has requested an appropriation to combat insect infestations in the forests. Your work is to find the insects, and then they go to work to destroy them; is that it?

Dr. HOWARD. They follow our methods. We tell them how to do it; that is all, sir.

Under the next item, 37, "For investigations of insects affecting truck crops," etc., and "insects affecting stored products," there is a large sum of money being expended for the sweet potato weevil, which has been discussed before this committee before. No increase is asked for this item, but I would like to show to the members of the committee a map of the present distribution of the sweet potato weevil and to give a brief report of progress.

Mr. McLAUGHLIN of Michigan. How much of this money was spent for this sweet potato weevil?

Dr. HOWARD. \$70,000; and we wish to spend \$70,000 more. The sweet potato weevil is an insect which in recent years has been very much on the increase.

Mr. RUBEY. Does this map indicate where you have done the work?

Dr. HOWARD. This shows where the insect occurred.

Mr. RUBEY. Have you been able to eliminate it from that territory?

Dr. HOWARD. From certain parts of it. It is not a difficult insect to handle, now that we have studied its life history and understand it pretty well. It is spread through the slips and draws which are used for propagation, and the States of Florida, Alabama, Georgia, and Mississippi have passed legislation preventing the introduction of slips or draws from infested regions. These slips and draws carry the weevil, and these things have been brought from regions where the insect occurred to regions where it should not occur.

Louisiana has also passed a law, which has not been effective because it has not been enforced; but Texas has passed no legislation whatever.

Mr. McLAUGHLIN of Michigan. How long ago did you make this request for legislation on the matter?

Dr. HOWARD. Of the States?

Mr. McLAUGHLIN of Michigan. Yes.

Dr. HOWARD. Two years ago, I think.

Mr. McLAUGHLIN of Michigan. Louisiana is the only one that complied?

Dr. HOWARD. No; Florida, Alabama, Georgia, and Mississippi have passed laws and are enforcing the laws. Louisiana has passed a law but is not enforcing it. Texas has not yet passed such a law. Our men have been scouting all this territory to find where the insect occurs. They have located all these points that you see on that map, and now they are going into each individual place and getting the farmers to destroy the infested sweet potatoes in the fields, and to destroy all of the plants, and then to get their new slips and cuttings for the next crop from regions where the insect does not occur.

Some experiments with poisons have been made in Texas, but they have not proved perfectly effective. In all these regions in the territory where the sweet potato is the only food plant, we have been able to greatly reduce the area and to wipe out the insect on farm after farm.

In Florida the problem is complicated, because there are wild food plants of the insect there on which it feeds. There is nothing to do there but get the people to destroy these wild food plants.

Mr. McLAUGHLIN of Michigan. How is the weevil carried?

Dr. HOWARD. It is carried on slips and draws that are used for planting in the spring; and it also flies. It is a small beetle; it looks more like an ant than a beetle, but, as a matter of fact, it will fly for a mile or two.

Mr. McLAUGHLIN of Michigan. If Texas is not doing anything, it had better be left to itself, had it not?

Dr. HOWARD. I think so.

Mr. HUTCHINSON. Doctor, I want to ask you about the wheat moths and weevils.

Dr. HOWARD. That matter is pretty well understood. Mr. Hutchinson. We haven't gone into that ourselves for the reason that there are only two States that seem to be suffering any damage, New Jersey and Pennsylvania, and each of those States have very competent entomologists, Dr. Headlee, in your State, and Prof. Sanders.

Mr. HUTCHINSON. But they are going farther West all of the time; they are spreading. If they keep spreading, they might threaten the entire United States?

Dr. HOWARD. Isn't it possible for the farmers to thrash their wheat earlier up there?

Mr. HUTCHINSON. Everybody can't thrash their wheat earlier. Here is a sample of wheat that has been affected, and here is another sample of good wheat. When this wheat was brought in, this infected wheat was just as good in appearance as this other wheat. This wheat is coming in now, and we do not buy it. We can not use it for making flour. We can use it only for chicken feed and

things of that kind. It does seem to me that the Government ought to do something to check its spread. I do not know whether anything can be done, but it seems to me that something might be done. This weevil looks a little bit like the pink boll weevil.

Mr. HOWARD. It belongs to the same family as the pink bollworm belongs to.

Mr. HUTCHINSON. It is very seriously affecting the wheat growers in New Jersey, and it is liable to get all over the country. I think it is one of the most important things to be considered.

Dr. HOWARD. We are not estimating for investigations of this insect. The men in New Jersey are perfectly competent to handle it, and, after all, this is simply a question as to whether the farmers can thrash their wheat before it is stored.

Mr. McLAUGHLIN of Michigan. Before?

Dr. HOWARD. In most of this section, after the wheat is harvested it is stored. I will ask Mr. Back to discuss that.

The CHAIRMAN. We will be pleased to hear Mr. Back.

STATEMENT OF MR. E. A. BACK, IN CHARGE OF STORED PRODUCT INSECT INVESTIGATIONS, BUREAU OF ENTOMOLOGY, DEPARTMENT OF AGRICULTURE.

Mr. BACK. Just as soon as the wheat is cut and shocked, sometimes a little earlier, the eggs are laid in the wheat in the shocks, and then the moths hatch and eat into the grain and do damage by devouring the interior of the kernel.

Mr. McLAUGHLIN of Michigan. Then the wheat isn't ruined at the time it is cut?

Mr. BACK. Sometimes the moth will attack the ripened wheat standing in the field, but the great damage comes, of course, after the wheat has been cut and stacked in the barn, provided it is not thrashed at once. This insect will breed in the bins in the barns. Storing in the barns without threshing make it possible for the moths to get into the wheat much more easily.

The CHAIRMAN. You know of no way of exterminating it?

Mr. BACK. Yes, sir; if wheat is threshed immediately, or very soon after it is harvested, there is very little danger.

The CHAIRMAN. That does not exterminate the flies.

Mr. BACK. Threshing and storing in bins does not exterminate the flies, because usually a few moths will be found feeding on top kernels of the granaries after the wheat has been stored.

The CHAIRMAN. In time, they will starve?

Mr. BACK. Probably not entirely, because they are able to feed on a few grains that are to be found here and there, and very few farmers ever clean out their bins entirely.

The CHAIRMAN. Can you suggest anything?

Mr. BACK. As Dr. Howard says, they may thresh their grain and store it in bins. Grain so stored can be fumigated to prevent loss.

The CHAIRMAN. Would an appropriation be necessary for that?

Mr. BACK. No, sir.

Mr. HUTCHINSON. You can fill that box up with wheat and close it tight, and they will hatch out?

Mr. BACK. Yes, sir; that is because the eggs were in the kernels when the wheat was put in the box.

Mr. HUTCHINSON. Don't you think that the eggs were laid at some time after the wheat was put in the box?

Mr. BACK. No, sir; not the eggs causing the original infestation.

Mr. HUTCHINSON. How did they get inside of the kernels?

Mr. BACK. Suppose you put a handful of wheat in that box [indicating]. There may be one kernel in there that is infested.

Mr. McLAUGHLIN of Michigan. With eggs?

Mr. BACK. With eggs, yes, sir; the others may be all right when they are put in the box. Then, after those eggs hatch out and the insect goes through its life cycle, the moths will lay new eggs on the other kernels, so that by spring, when you open the box and expect to find a perfect lot of grain, you will find that the original insects have multiplied in the dry grain to such an extent that they have practically destroyed every kernel.

Mr. HUTCHINSON. Do you mean to say that the eggs are laid on the outside and get in the grain?

Mr. BACK. Yes, sir; every time.

Mr. HUTCHINSON. You say that the eggs are laid on the outside and get in the grain?

Mr. BACK. No; the eggs hatch first.

The CHAIRMAN. Thank you Mr. Back.

STATEMENT OF DR. L. O. HOWARD, CHIEF OF THE BUREAU OF ENTOMOLOGY, DEPARTMENT OF AGRICULTURE—Continued.

Dr. HOWARD. Mr. Hutchinson, this insect has been known in this country for 120 years. It must have been introduced by some of the colonists before the Revolutionary War. It has been known over a considerable section of the country, over the eastern section, but it has been only during the past few years that it has damaged wheat to any considerable extent in these two States. I do not think there is any great danger of it spreading.

Mr. HUTCHINSON. It is spreading all the time. It is going farther and farther. It is over in Pennsylvania, and is getting up around Lancaster, away up there. We don't buy this wheat. We have absolutely abandoned the use of it for flour and use it only for chicken feed.

Dr. HOWARD. It seems as if the farmers could thrash their wheat a little earlier.

Mr. HUTCHINSON. All of them can not get their wheat thrashed at once; it is impossible.

Dr. HOWARD. I took a trip over your State last summer with Dr. Headlee. He told me he had issued publications telling the farmers of New Jersey how to handle it.

Mr. McLAUGHLIN of Michigan. You have seen the way that the bugs attack the field peas, haven't you? Dr. Howard, of course, knows a great deal better than I do, but it seems to me that the fly stings the pea and lays its eggs on the inside, and then the little flies develop in there, and they grow inside of the field pea to be about the size of the head of that wooden pin [illustrating]. If you will take the pea and break it open, on the inside you will find the fly.

Mr. HUTCHINSON. That is the same way with the wheat.

Mr. McLAUGHLIN of Michigan. Except that the gentleman says that the eggs are laid on the outside of the wheat and hatch on the

outside, and that the insect then develops and digs into the wheat—digs its way in.

The CHAIRMAN. What progress are you making under item 38, "for investigations and demonstrations in bee culture"?

Dr. HOWARD. That is very well covered in my annual report. I had expected to have Dr. Phillips here to speak to you on that.

The CHAIRMAN. You are making progress?

Dr. HOWARD. Very good. There has been an enormous increase in the exportation of honey from this country, an enormous increase in the production of honey, as a substitute for sugar, largely stimulated by the department as a war measure.

The CHAIRMAN. Your present appropriation will be enough?

Dr. HOWARD. I think so. The Secretary of Agriculture has made no request for anything further.

There are no more increases, Mr. Chairman, until we come to item 39, page 174, "for investigations of insects affecting tropical and subtropical fruits," and I shall be very glad to leave the discussion of those increases to Mr. Marlatt, who has charge of that branch, and who at the same time will come before you for the appropriations for the Federal Horticultural Board, of which he is chairman. I think it would be better to leave those propositions to him.

Mr. McLAUGHLIN of Michigan. Have not requests been made of him, and perhaps they have come to you also, from some of the people of Texas to change the regulation by which you demand that local people interested shall pay for fumigating the cars in connection with shipments across the Mexican border?

Dr. HOWARD. Yes.

Mr. McLAUGHLIN of Michigan. They want the Government to bear that expense?

Dr. HOWARD. Yes.

Mr. McLAUGHLIN of Michigan. Have you considered that?

Dr. HOWARD. That does not come under me, but under the Federal Horticultural Board.

That finishes the matters for the bureau, Mr. Chairman.

The CHAIRMAN. Thank you, very much, Dr. Howard.

MORNING SESSION.

THURSDAY, JANUARY 8, 1920.

Mr. HARRISON. Mr. Chairman, when Dr. Howard was before the committee he suggested that the consideration of item No. 39, on page 174, and item No. 40, on page 175, be deferred until Mr. Marlatt could be here. Mr. Marlatt is here, and would be glad to discuss those items so that the hearings on the Bureau of Entomology can be printed.

STATEMENT OF MR. C. L. MARLATT, ASSISTANT CHIEF OF THE BUREAU OF ENTOMOLOGY, DEPARTMENT OF AGRICULTURE.

Mr. MARLATT. Mr. Chairman, these items relate to the work that the Department of Agriculture is doing with respect to citrus and subtropical-fruit insects.

Item No. 39, on page 174, is "for investigation of insects affecting tropical and subtropical fruits including the orange, lemon, grape fruit, mango," and so forth. The amount of the estimate is \$24,500.

Item No. 40, on page 175, is "for investigations and control, in cooperation with the Federal Horticultural Board of the Mediterranean and other fruit flies." The amount of the estimate is \$32,000.

Item No. 39 covers the insect work in relation to the big citrus industry of Florida and California. There has not been an increase in that amount for some 8 or 10 years. The amount has been \$16,500, and that amount has been practically a continuous one without an increase for that period.

It began with \$21,500, and the reduction is due to transfer to the statutory roll.

The CHAIRMAN. You are asking for an increase?

Mr. MARLATT. We are asking for an increase of \$8,000, to be divided \$5,000 to the work in California and \$3,000 to the work in Florida.

While this is one of the smallest appropriations made for the department it covers a very important field of fruit production, namely, that of all tropical and subtropical fruits. We have been going along for a number of years with a very small appropriation, but there is now a very large need for an increase in the work, and it has not been possible to undertake important and necessary work on account of shortage of funds. I can, perhaps, best explain the needs by enumerating the types of work that are being conducted under this appropriation.

The subtropical cultures in California covered by this appropriation include all citrus fruits, such as the orange, lemon, and grapefruit, and also the fig, olive, and guava, and the rapidly developing date industry in the Coachella Valley.

In connection with the citrus work, one of the important continuing items is the investigation of orchard fumigation with hydrocyanic acid gas. Within the last two years there has been an entirely new development in this process, namely, in the employment of the liquefied gas in lieu of the old method of generating the gas in jars under the tented trees. The gas is now being produced in plants and liquefied and carried to the orchard in suitable containers, and this new form of use has resulted in much simplifying the method of fumigation. The manufacture, handling, and utilization of this liquefied gas introduces certain new risks to the persons engaged in its use and has involved the working out of new tables of dosage with respect to the effect on the insects concerned and on the trees and fruit. The working out of these needs is now under way and the citrus interests of California are looking to this department to standardize the method and to develop proper safeguards both with respect to the operators and to the orchards treated.

Another important phase of the California citrus work is the study and demonstration work which is being conducted with respect to certain mealy bugs. This work involves also a study of the Argentine, and which has now thoroughly invaded all the California citrus

districts. This ant is only indirectly of importance to the citrus industry, but the food relations which it maintains with these mealy bugs has resulted in the enormous increase of the mealy bugs in citrus orchards and the control of these citrus pests is dependent entirely on the control of the ant. This work already has resulted in clearing the ant and correspondingly the mealy bugs from large citrus areas in which the profitable production of oranges had been largely destroyed by the combined work of the ants and mealy bugs. It is desirable to continue this work and to extend it until the mealy bug and ant have been fully brought under control with respect to the areas invaded in southern California.

The rapidly developing date industry in the Coachella Valley is retarded for the present by two important scale insects. Funds have never been available to properly investigate these insects as a basis for control measures. It is apparent that such control measures are possible and the date industry may even be freed entirely from the presence of these insects. This is an important phase of the California work. It has been begun in a very limited way and this work has shown what undoubtedly can be accomplished if we have funds to properly develop investigation and control features.

The work in Florida similarly covers all the subtropical cultures developed or being developed in that State. A new station has been recently established near Miami to especially study the insect enemies of the avocado, mango, and guava. The avocado industry is one of the new promising fruit developments in that State and there are several insect problems of importance which should be worked out in relation to this fruit. The laboratory which has already been established for this work is very much restricted in its possibilities of usefulness by lack of funds.

The citrus work in Florida with laboratory headquarters at Orlando has been in operation for a considerable period. It is recognized as being of tremendous value to the State and is on both an investigational and demonstrational basis. The indorsement of the work of this laboratory has been widespread and emphatic. It has had no enlargement for a considerable period of years and should be strengthened by the addition at least of another agent with funds for enlarging the extent and usefulness of the project.

As an associated and related piece of work of very considerable importance, we are attempting to carry out under this appropriation also an investigation of the insects which commonly are found in greenhouse and hothouse cultures—plants most of which are tropical or subtropical in nature. This really involves the entire ornamental growth of plants under glass throughout the United States, an industry scarcely second even to the outdoor growth of ornamentals. No systematic effort has hitherto been made to study the insect enemies of such cultures of ornamentals under glass, and there is here a field of tremendous usefulness and one for which there is a wide demand for work and information.

We are attempting to do all of this work on an appropriation of \$16,500, and have not asked for an increase up to now. I think this is almost a unique case in the Department of Agriculture, where an appropriation of this kind has thus run along without an increase.

and I hope, therefore, that your committee will see fit to grant the small increase that is requested.

The CHAIRMAN. What do you propose to do to standardize the methods of fumigating orange orchards?

Mr. MARLATT. We have been cooperating with the makers of this gas to determine the reasons for its occasional explosive qualities, and to eliminate this risk. That is really a matter of production, purity, and proper containers, and that phase of the work has been largely completed. I think we have the gas now on a fairly safe basis in these respects. What we are now attempting to standardize is the use side—the orchard side.

The CHAIRMAN. You are investigating its use?

Mr. MARLATT. We are now working on the orchard side, to determine the best method of using the gas, the strengths to use, and working out tables which can be put into the hands of the fumigators for practical work.

This increase, therefore, of \$5,000 for California, and \$3,000 for Florida, will enable us to go on with the work which we are now doing, and which we have undertaken during the last two years. It, however, is a very modest increase, considering the importance of the tropical and subtropical fruit subject.

The next item, No. 40, is "For investigation and control, in connection with the Federal Horticultural Board, of the Mediterranean and other fruit flies." The amount estimated is \$32,000.

This appropriation has been running along for eight years or more without an increase, and no increase is now asked. This appropriation is in large part for the administration of the fruit-fly quarantine. A quarantine is in force against certain fruits from the Hawaiian Islands prohibiting the importation of such fruit into the United States as is affected by the Mediterranean fruit fly and by the melon fly, thus guarding against the spread of these pests. These insects are widespread throughout the islands, but as yet have not gotten a foothold in North America, so far as we know. This fund is used for the administration of this quarantine and the inspecting of certain fruits the exportation of which to the United States is permitted. These are chiefly pineapples and coconuts. This appropriation also covers research and control work which is done in the Hawaiian Islands with respect to these insects. In addition it supports the investigations and inspections of fruit imported into the United States from other countries where the fruit fly is known to exist. It covers also the fruit-fly investigations which we are conducting in the countries more immediately contiguous to the United States; i. e., in the West Indies and in Central and South American countries, including the Canal Zone. The information thus obtained is needed to determine what measures are necessary to prevent the entry of these pests or other similar fruit flies into this country.

No increase is asked for this work. The appropriation is now fully used and should be continued.

Item No. 41 is "for conducting investigations and study of the nature and habits of the pest known as the camphor thrips, for the purpose of discovering methods of control and applying methods of

eradication or control already discovered." The amount estimated is \$5,000.

This work was provided for under a special appropriation inserted in the bill carrying the current appropriations for the department. It is for work which was specially requested by the interests connected with the development of the camphor industry in Florida. Camphor is a very essential drug and there has been a great shortage of it, and the development of the industry in Florida was being seriously threatened by an insect—a species of thrip—

The CHAIRMAN. Is the camphor thrip a new pest?

Mr. MARLATT. It may be a new pest, but it is more probable that it is a native insect of Florida which has found camphor a favorable and likable food.

We have, with this small appropriation of \$5,000, started to investigate this insect and the means of controlling it. This work is only beginning. This appropriation was not available until last July. We are not asking for any increase in this appropriation.

The CHAIRMAN. Could not that item be merged with some of these other items?

Mr. MARLATT. There is no objection to merging it with the first item; for the investigation of insects affecting tropical and sub-tropical fruit.

Mr. HARRISON. You mean to combine items 41 and 39?

The CHAIRMAN. Yes.

Mr. MARLATT. The only advantage of having a separate item is that it indicates a definite allowance of \$5,000 for that work.

The CHAIRMAN. I take it that that would be the point of view of the people particularly interested in this work.

Mr. MARLATT. And they know that they have got so much money to do that work. It would not affect the work at all to consolidate the items.

The CHAIRMAN. I think with that statement showing that the money is to be used for that purpose it would be satisfactory. As I recall, this was put in by the Senate or by the conferees last year.

Mr. MARLATT. It was put in by the Senate, I think.

The CHAIRMAN. If they were assured that the money would be spent for that purpose, I think it would be satisfactory. Would that be satisfactory to the department?

Mr. MARLATT. Quite so.

The CHAIRMAN. It amounts to the same thing?

Mr. MARLATT. It amounts to the same thing.

The CHAIRMAN. Is there anything else, Doctor?

Mr. MARLATT. That concludes the subject of these items belonging to the Bureau of Entomology, Mr. Chairman.

The CHAIRMAN. We are very much obliged to you, Dr. Marlatt.

Mr. MARLATT. I have the Federal Horticultural Board work, which covers a good deal more ground.

The Chairman. We can take that up after recess.

(Thereupon, at 12.50 o'clock p. m., the committee took a recess until 2.15 p. m.)

MORNING SESSION.

FRIDAY, JANUARY 9, 1920.

The CHAIRMAN. We will be pleased to hear you on the item for the eradication of the screw worm, Mr. Hudspeth.

STATEMENT OF HON. C. B. HUDSPETH, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF TEXAS.

MR. HUDSPETH. I want to take up another matter from the livestock standpoint which I did not get to present to the House Agricultural Committee at the last session but did present to the Senate Committee. I am executive committeeman and also attorney of one of the cattle raisers' associations in Texas. Texas is a great cattle-producing country. I do not know whether or not they have in other States what is known as the screw worm. Do you have the screw worm in Alabama, Mr. Heflin?

MR. HEFLIN. I do not believe I have ever heard of it.

MR. HUDSPETH. We have in Texas, the agricultural reports there show, what is called the screw worm, and last year it destroyed a million dollars' worth of live stock.

I will explain to you what it is as a cow man. If any kind of a little sore appears on the cow, a fly known as the blow fly lays its eggs in that sore and hatches a worm, and that worm bores into the very vitals of that animal, and does it very quickly.

We are raising now in Texas the high-grade Hereford and Durham cattle. This worm, as I stated, kills \$1,000,000 worth of live stock. The Agricultural Department made an investigation and put a man at Dallas, Tex., last year. He went over the country and discovered a method of destroying the fly. The fly hibernates in a carcass and stays there, and millions of maggots are produced from one fly. You made an appropriation which the Agricultural Department expended last year with the aid of this one man, amounting to \$40,000, which, of course, is a very small sum; but he educated the ranchman and the cowman to destroy this fly by burning up these carcasses and also by scattering medicine over the range that kills the fly. Senator Kendrick, of Wyoming, thoroughly understands the proposition. I explained it to him and he said, "Yes; I know what they are doing because I have seen them do it."

Gentlemen, Texas is a small part of this country, but, I take it, similar conditions would prevail in the southern part of Florida and Arkansas. Texas produces more cattle than any other State in the Union and, of course, we are only asking our portion.

It has been a great work. The man whom they sent there has done a great work toward the eradication of this blowfly that produces this screw worm.

MR. TICHNER. How does he eradicate the blowfly?

MR. HUDSPETH. As I understand it, they sprinkle over the range a certain kind of poison, and when the fly alights on it, it kills him. They put it on possibly in little pots or something of the kind. They also put it in the carcass of a dead animal, where cattle will congregate.

Mr. TINCHER. We have got not only the blowfly but also the screw worm.

Mr. HUDSPETH. The blowfly produces the screw worm.

Mr. TINCHER. We have only got the screw worm where we dehorn.

Mr. HUDSPETH. Where there is a little spot of blood the fly will alight. In the old days the cow punchers carried a medicine bottle and wherever we saw one of those animals had worms we lassoed him and threw him down and doctored him. But that is very dangerous to the men and it is also very detrimental to these high-grade cattle we are raising down there. Hence, if a method can be established (and the Agricultural Department claims they can eradicate this blowfly and saved \$1,000,000 worth of property to the State with the small expenditure of \$25,000 or \$30,000), it strikes me, gentlemen, that it is the part of good business and economy on the part of this committee to make an appropriation of that kind.

The CHAIRMAN. The department is doing some of that work now, is it not?

Mr. HUDSPETH. Yes, sir; the Senate Committee gave us last year \$25,000, but, of course, everything was compromised and it was cut down to \$10,000, which was wholly insufficient to do very much work. As the representative of those people down there, I am just presenting these matters to you for your consideration. I represent the entire western part of the State, which is this live stock growing section.

Mr. McLAUGHLIN of Michigan. That has been going on for a long time?

Mr. HUDSPETH. The old specific method of chloroforming was the only way in the brush country. If the worms were discovered very early you could save the animal, but generally they were discovered too late. This worm will bore into the vitals in a few days. It will screw into the vitals of the animal and stay there and kill the animal in a very short time.

Mr. McLAUGHLIN of Michigan. That has been the trouble for a considerable length of time?

The CHAIRMAN. The State legislature has taken no notice of it?

Mr. HUDSPETH. I do not think the State legislature has done anything, sir.

Mr. TINCHER. As a matter of fact, I never heard until just now that there was any way of treating the cattle to kill the screw worm or any way, other than the killing of the blowfly.

Mr. HUDSPETH. Yes; they started this work last year and they did a great deal of good.

Mr. TINCHER. Every man in the cattle business realizes the seriousness of the menace due to the blowfly.

Mr. HUDSPETH. The difficulty has been that the State will not do anything unless the Federal Government does something.

Mr. McLAUGHLIN of Michigan. I know that.

Mr. HUDSPETH. If the Federal Government made an appropriation to be matched by the State, I believe the State would raise it, but the State usually relies on the Federal Government and the Federal Government has done most of it up to the present time in the live-stock line toward improving the live stock.

Mr. McLAUGHLIN of Michigan. What you say is very interesting in regard to this man.

Mr. HUDSPETH. Yes, sir.

Mr. McLAUGHLIN of Michigan. He is a highly scientific man. He has been working for the State for years and has accomplished nothing, but when employed by the Federal Government for one year he has done wonders.

Mr. HUDSPETH. I do not know what he has been doing for the State, but I do know what he did under the Federal appropriation.

Mr. HEFLIN. Possibly, that was because he had something to work with.

Mr. HUDSPETH. I do not think the State gave him anything to work with.

Mr. McLAUGHLIN of Michigan. I have a very high opinion of Texas, gained largely from the character of the representatives which they have sent here during my experience here.

Mr. HUDSPETH. Thank you, sir.

Mr. McLAUGHLIN of Michigan. But it is rather surprising to hear that this test is so well known and that the State has seen fit to do nothing; also that one man working along the same lines for a long time for the State authorities accomplished practically nothing, whereas, working one year for the Federal Government, he did a great deal.

Mr. HUDSPETH. Let me give you another illustration. As a member of the Texas senate we made an appropriation of \$250,000 for the eradication of the wolf. That \$250,000 was expended and the wolf was not eradicated. You men here in Congress got another appropriation and employed Government-paid trappers and you put them in Texas and the wolf is to-day eradicated in Texas. To-day the lands that were only worth \$1.50 an acre, before the ranchman could turn his goats loose, under Government supervision, they are renting for \$10 an acre, and you and I and every man in the United States is getting the benefit of those taxes.

Mr. McLAUGHLIN of Michigan. I never thought that about the State of Texas.

Mr. HUDSPETH. I do not hesitate to tell the truth; those are facts, and that has been done.

Mr. HEFLIN. The State was employing a method that was not thought effective?

Mr. HUDSPETH. Yes.

Mr. HEFLIN. The Government, of course, worked directly.

Mr. HUDSPETH. Yes; that is it.

Mr. LEE. That is true.

Mr. HUDSPETH. Many States throughout this Union have adopted prohibition; yet they did not enforce it to the letter, but in my opinion national prohibition will be enforced all over the country. I am giving you facts in regard to Texas. We are simply asking for an appropriation, which I believe every other citizen in the country is interested in where you have the growing of these things and the live stock. Those are facts. For 10 years Texas attempted to eradicate the wolf and made these appropriations, but let me explain why they did not eradicate the wolf: They placed a bounty of so much on every scalp turned in. Trappers went out into that country on the State bounty and they trapped the wolf, but they would let the she-wolf go; but when the Federal Government put men in that country to trap the wolf they paid them by the month

and they had to make reports every night on the number of wolves killed. The men had to make their reports daily to some man in the Agricultural Department, and there was no incentive to turn the she-wolf loose, because they were paid by the month. There was no incentive for the Government man as was the case with the man trapping wolves for bounties. That is the reason why the State could not eradicate the wolf.

The CHAIRMAN. The question of the blow fly or screw worm is largely educational?

Mr. HUDSPETH. That is largely educational. Of course, as I said, the old method we had, Mr. Haugen, was mercurial ointment and chloroform. The Federal Government has discovered poison that kills the blow fly, and they are educating the ranchmen to put it out. This, as you see, is a matter of education.

The CHAIRMAN. I take it that the county agents do a great deal of that work, too.

Mr. TINCHER. I wonder if there has been a bulletin on that?

Mr. HUDSPETH. Yes; a man by the name of Webb is in charge of that.

The CHAIRMAN. A man by the name of Webb is in charge of it?

Mr. HUDSPETH. Yes, sir.

Mr. HEFLIN. How long is the worm?

Mr. HUDSPETH. Just about 1 inch long.

Mr. YOUNG. Does it confine its operations to cattle?

Mr. HUDSPETH. Hogs, sheep, and all kinds of live stock; it even kills chickens and turkeys—anything where there is a spot of blood or a little sore. This appropriation for work on the screw worm is very important, gentlemen, I think, not only for Texas but for every other State. I would ask that an appropriation of at least \$30,000 be made to continue this educational work along with the eradication of the screw worm.

The CHAIRMAN. You mean the eradication of the blow fly?

Mr. HUDSPETH. I mean both.

Mr. TINCHER. The Department of Agriculture has a method of eradicating the blow fly, but for doing this work \$30,000 would not be a drop in the bucket.

Mr. HUDSPETH. I do not think so.

Mr. TINCHER. There is not a township in the cattle country that does not sustain that much loss. I think it is a matter of education.

The CHAIRMAN. What is the Federal Government doing at present?

Mr. HUDSPETH. Since it is raising these high-grade cattle, as you know, only a few need be lost by that worm to run the amount up to several thousand dollars.

Mr. VOIGT. What is the size of this fly?

Mr. HUDSPETH. It is a big, blue fly; it is twice or three times as large as the common house fly.

Mr. VOIGT. This fly deposits eggs which hatch out these worms?

Mr. HUDSPETH. It will alight on any kind of a spot of blood and lay eggs—thousands and thousands of eggs—and every one of those eggs makes a worm.

Mr. TINCHER. It depends on the steer. If you put the dope on one side of his head and leave it off the other side for five days, in the months of May or June, the other side of his head will be working out. The fly put that worm in there, and that sore is growing, getting larger and larger.

Mr. HUTCHINSON. Do the flies kill the animal?

Mr. HUDSPETH. The worm bores right in. The maggot produced from this egg bores right into the vitals.

Mr. TINCER. I did not suppose that it was any more possible to eradicate the blow fly than to eradicate the house fly.

Mr. HUDSPETH. I did not think so until last year. I had no idea that you could eradicate the fly. The only way I thought you could treat the proposition was to kill the worm after it developed with medicine, and, of course, it is only possible to do that at very great cost.

Mr. VOIGT. Any county in your State that has cattle would spend more than \$30,000 for medicine to eradicate this worm.

Mr. HUDSPETH. Surely; and this appropriation is just a matter of education to the live-stock growers as to how to eradicate this fly. The Government has given us, of course, many ideas that we never thought of before. They have studied these matters out; that is what they are there for.

Activities under lump-fund items, Bureau of Entomology.

Projects.	Allotment, 1920.	Estimate, 1921.	Increase.
Deciduous-fruit insect investigations:			
(a) Supervision.....	\$5,500	\$5,500	
(b) Apple-insect investigations.....	35,090	35,090	
(c) Peach-insect investigations.....	5,540	5,540	
(d) Grape-insect investigations.....	6,080	6,080	
(e) Nut-insect investigations.....	9,600	9,600	
(f) Investigations of orchard insecticides and spraying machinery.....	7,500	7,500	
(g) Cranberry and small-fruit insect investigations.....	2,950	2,950	
(h) Control of deciduous-fruit insects by natural agencies.....	2,640	2,640	
(i) Orchard-insect survey.....	5,280	5,280	
(j) Investigation and control of the imported Japanese beetle.....	25,000		¹ \$25,000
Total.....	105,780	280,780	¹ 25,000
Control of the Japanese beetle (new).....		⁴ 130,000	⁴ 130,000
Cereal and forage insect investigations:			
(a) Supervision.....	7,350	7,350	
(b) Cereal-insect investigations.....	76,910	76,910	
(c) Forage-insect investigations.....	37,800	47,800	10,000
(d) Corn-borer research.....	25,000	25,000	
Total.....	147,060	157,060	10,000
Control of the European corn borer.....	250,000	⁵ 500,000	250,000
Southern field crop insect investigations:			
(a) Supervision.....	11,806	11,806	
(b) Cotton-insect investigations.....	53,094	123,094	70,000
(c) Tobacco-insect investigations.....	26,000	34,000	8,000
(d) Sugar-cane insect investigations.....	9,500	9,500	
Total.....	100,400	178,400	78,000
Forest and shade tree insect investigations:			
(a) Supervision.....	4,300	4,300	
(b) Field investigations.....	33,734	33,734	
(c) Laboratory investigations.....	10,756	10,756	
Total.....	48,790	⁶ 48,790	
Truck crop and stored product insect investigations:			
(a) Supervision.....	10,300	10,300	
(b) Investigation and control of sweet-potato weevil.....	60,000	60,000	
(c) Truck-crop insect investigations.....	41,660	41,660	

¹ Decrease.

² Includes \$2,280 transferred to statutory rolls.

³ Transferred to new item for control of Japanese beetle.

⁴ \$30,000 to be immediately available.

⁵ To be immediately available.

⁶ Includes \$1,200 transferred to statutory roll.

Activities under lump-sum items, Bureau of Entomology—Continued.

Projects.	Allotment, 1920.	Estimate, 1921.	Increase.
Truck crop and stored product investigations—Continued.			
(d) Investigation of insects attacking beans and peas in storage.....	\$5,380	\$5,380	.....
(e) Investigation of insects attacking cowpeas and peanuts in storage.....	2,330	2,330	.....
(f) Investigation of insects attacking flour and other mill products.....	3,310	3,310	.....
(g) Investigation of insects affecting drugs.....	1,130	1,130	.....
(h) Corn weevil investigations.....	5,500	5,500	.....
(i) Investigation of warehouse fumigants.....	2,350	2,350	.....
(j) Temperature and humidity studies with reference to control of stored-product insects.....	3,000	3,000	.....
Total.....	134,960	134,960	.....
Bee culture:			
(a) Supervision.....	4,100	4,100	.....
(b) Diseases of bees.....	2,600	2,600	.....
(c) Wintering of bees.....	6,500	6,500	.....
(d) Demonstration work in bookkeeping.....	21,800	21,800	.....
Total.....	35,000	35,000	.....
Tropical and subtropical fruit insect investigations:			
(a) Supervision.....	1,000	1,000	.....
(b) Citrus-fruit insect investigations in California.....	6,800	11,500	\$5,000
(c) Citrus-fruit insect investigations in Florida.....	4,000	7,000	3,000
(d) Investigations of insects affecting mango, guava, avocado, and other subtropical fruits.....	2,500	2,500	.....
(e) Investigations of insects affecting tropical and subtropical fruits and plants in greenhouses.....	2,500	2,500	.....
Total.....	16,500	24,500	8,000
Investigation and control of the Mediterranean and other fruit flies:			
(a) Supervision.....	5,000	5,000	.....
(b) Control of export Hawaiian fruit.....	9,000	9,000	.....
(c) Control of foreign fruit offered for entry.....	400	400	.....
(d) Investigations of foreign fruit offered for entry.....	2,000	2,000	.....
(e) Life history and natural enemy studies.....	400	400	.....
(f) Geographical distribution of fruit flies.....	11,200	11,200	.....
(g) Investigation of fruit flies and other tropical and subtropical fruit insects in the Canal Zone, Panama.....	4,000	4,000	.....
Total.....	32,000	32,000	.....
Investigation of camphor thrips.....	5,000	5,000	.....
Miscellaneous insect investigations:			
(a) Identification and classification of insects.....	26,165	26,165	.....
(b) Investigations of insects affecting the health of man.....	16,165	16,165	.....
(c) Investigations of insects affecting the health of animals.....	20,000	20,000	.....
Total.....	62,330	62,330	.....
General administrative expenses.....	5,480	5,480	.....
Gipsy moth and brown-tail moth investigations:			
(a) Supervision.....	11,200	11,200	.....
(b) Laboratory and field investigations.....	68,000	68,000	.....
(c) Scouting and extermination work.....	174,850	174,850	.....
(d) Quarantine and inspection of nursery, forest, and quarry products.....	50,000	50,000	.....
Total.....	304,050	304,050	.....
Grand total.....	1,247,350	1,696,350	451,000

¹ Includes \$3,200 transferred to statutory roll.² Includes \$1,200 transferred to statutory roll.³ Includes \$1,600 transferred to statutory roll of Division of Publications.⁴ Includes \$1,400 transferred to statutory roll.

The CHAIRMAN. We are very grateful to you, Congressman Hudspeth.

(Thereupon the committee proceeded to consider estimates for another bureau.)

COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Saturday, December 13, 1919.

AFTER RECESS.

The committee reassembled at 2 o'clock p. m., pursuant to recess, Hon. Gilbert N. Haugen (chairman) presiding.

The CHAIRMAN. Mr. Nelson, we will hear you next, if you are ready. Do you prefer to make a general statement, and then take up the items, item by item?

BUREAU OF BIOLOGICAL SURVEY.

STATEMENT OF MR. E. W. NELSON, CHIEF OF THE BUREAU OF
BIOLOGICAL SURVEY, DEPARTMENT OF AGRICULTURE.

Mr. NELSON. Mr. Chairman, I think perhaps I better clear up the first item—the statutory roll—and have that out of the way, and then go on with the general work of the bureau.

The CHAIRMAN. Very well.

Mr. NELSON. There are no changes in the statutory roll except transfers to it of clerks from the lump-sum appropriation, according to the requirements of the law.

The CHAIRMAN. Item 2, one chief clerk and executive assistant at \$1,800, changed to one chief clerk at \$1,800.

Mr. NELSON. That is merely a change in order to shorten the title and make it conform with the designation of similar officers in other bureaus.

The CHAIRMAN. To conform with the designation of similar offices in other bureaus?

Mr. NELSON. Yes, sir. There are two changes of this character.

The CHAIRMAN. They are all carrying the same salary?

Mr. NELSON. At the same salary; there is no change in pay. The entire increase in the statutory roll of \$12,900 is due to the transfer of clerks from lump-sum appropriations.

The CHAIRMAN. I think we had better take up the items one by one.

Mr. NELSON. One clerk each was transferred from the lump-sum funds for food habits of birds and mammals, and for the protection of migratory birds, at \$1,800; one clerk from game protection, at \$1,500; two clerks from food habits, at \$1,400 each; one clerk from control of rabies, at \$1,400; two clerks from food habits, at \$1,200 each; one clerk from migratory-bird appropriations, at \$1,200, a total of \$12,900. There are no increases in salaries.

The CHAIRMAN. They are transferred at the same salary?

Mr. NELSON. They are transferred at the same salary and deduction is made from the lump-sum appropriations in corresponding amounts.

The CHAIRMAN. There is no increase or change except by transfer?

Mr. NELSON. No change except transfers and changes in titles of two clerks.

The CHAIRMAN. I think that will cover it.

Mr. NELSON. The next item is No. 29, on page 182, "for the maintenance of the Montana National Bison Range and other reservations." There is no need for reading all of this?

The CHAIRMAN. No, just so you give the first line so that we can refer to it readily in the hearings.

Mr. NELSON. For the maintenance of the Montana National Bison Range and other reservations, etc. There are 74 of these reservations under the jurisdiction of the Biological Survey—69 bird reservations, 1 combination bird and game, and 4 big-game reservations.

The CHAIRMAN. How many?

Mr. NELSON. Sixty-nine bird reservations and 5 game reservations; that is, 4 big-game reservations and 1 combination bird and game reservation.

The CHAIRMAN. Five bird and game reservations?

Mr. NELSON. Bird and game reservations combined. We now have on these reservations 356 buffalo, 324 elk, 21 deer, and 57 antelopes. The animals are all in good condition and are increasing rapidly.

The bird and game reservations are scattered all over the country, as indicated by the red spots on this map (indicating).

The CHAIRMAN. I think you better indicate by States, as the map does not go into the record.

Mr. NELSON. Federal bird and game refuges are located in 19 States and 3 Territories, as follows: Arizona, California, Florida, Idaho, Louisiana, Michigan, Minnesota, Mississippi, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Texas, Utah, Washington, Wyoming, Alaska, Hawaiian Islands, and Porto Rico.

Mr. McLAUGHLIN of Michigan. I note you are asking for \$2,200 increase to provide a warden service for bird reservations in Alaska, and further you say that this service is needed in order to promote the development of grazing and other interests where possible. What does your work have to do with the grazing?

Mr. NELSON. Under the law the bird reservations are under the jurisdiction of the Department of Agriculture; but an Alaska bird reservation, which includes the Aleutian Islands is under the joint jurisdiction of the Department of Commerce and the Department of Agriculture; on account of the fisheries interest there, the part relating to fisheries being under the Department of Commerce, and the part relating to the protection of birds and land mammals being under the Department of Agriculture.

Mr. McLAUGHLIN of Michigan. The connection between birds and grazing is what I can't understand.

Mr. NELSON. These islands are parts of a bird reservation and the control of grazing is necessary to protect the welfare of the bird life on them. They are Arctic in character and have no trees, but there

is grass and other vegetation. Heretofore they have been considered of no economic value, but some people in Oregon got the idea that they could develop a grazing industry on the islands and asked for permits to be issued by the Secretary of Agriculture and Secretary of Commerce giving them the grazing privileges on these islands. They are now experimenting as to whether or not they can develop successfully sheep and cattle growing there. We gave those people the permits, and I understand they have spent more than \$150,000 in the experiment. It appears as though they may possibly be successful. There appears to be a real chance to make something out of these otherwise desert islands, while at the same time safeguarding the bird life. Grazing permits have been issued, I think, to two, perhaps, three individuals, and within the next two or three years the question will be definitely determined. If the first company makes a success, there is no doubt that considerable development will follow. I think this experiment ought to be encouraged so far as can be done without serious detriment to the bird life of the islands. The Department of Commerce is encouraging the development of fisheries and issuing permits for the establishment of fishing stations, so that between the departments, we do what we can to foster the development of grazing and of fishing in that territory while conserving its wild life resources.

It is the duty of the Secretary of Agriculture to safeguard the bird life there, and the permits for grazing he issues with the proviso that the permittees will refrain from destroying bird life or otherwise interfering with the birds.

Mr. McLAUGHLIN of Michigan. In that connection, I have been told that permits have been issued for the establishment of canning industries, I believe, it is said, at the mouth of the Yukon River.

Mr. NELSON. That is on the mainland.

Mr. McLAUGHLIN of Michigan. Yes; and the result has been that the fish do not go up the river as they formerly did, and that the inhabitants up the river have been sadly in need of food, being deprived of it on account of it being taken at the canneries at the mouth of the river, and they do not go up.

Mr. NELSON. I have heard something about that. I once lived four years near the mouth of the Yukon. One year the salmon ran up the river a month earlier than usual and the natives entirely missed the run. The result was that the natives caught only a few fish and were so short of food the following winter that, if it had not been for the fur traders they would have starved to death. It does not necessarily follow that because they failed to catch salmon this year that it was due to the cannery at the mouth of the Yukon. I understand there is but one cannery there.

Mr. McLAUGHLIN of Michigan. The cannery has been there for a number of years?

Mr. NELSON. I think it has been there about two years.

Mr. LEE. Do they completely control the mouth of the river with nets?

Mr. NELSON. I doubt if one cannery could. In its lower course the Yukon is about a mile wide and empties through various channels in a delta about 60 miles broad at its mouth. The main channel of the river is on the left-hand side of the delta. The cannery was originally at Andreafski, a short distance above the delta, but has

been moved down near the mouth of one of the main channels in the delta.

Mr. McLAUGHLIN of Michigan. What is the width of the river up where this fishing cannery is?

Mr. NELSON. About a mile at Andreafski and probably less at its present location.

Mr. McLAUGHLIN of Michigan. Then you are of the opinion that the failure of the fish to go up the river is not due to the establishment of the cannery?

Mr. NELSON. Yes, sir; I should doubt that very much. The single cannery would not be likely to have such a result in so brief a time. Such a report would need careful investigation before being accepted.

Mr. McLAUGHLIN of Michigan. You say this could not be established without investigation; has some investigation been made to determine that?

Mr. NELSON. I do not know as to that; that comes under the activities of the Bureau of Fisheries, in the Department of Commerce, and my information is merely of a general character.

Mr. McLAUGHLIN of Michigan. It is your opinion, then, that the fish can not be stopped by the canneries?

Mr. NELSON. They may be stopped by very extensive netting. They might be depleted so that the run in the Yukon would in a few years amount to little or nothing. That ought to be safeguarded; but by ordinary fishing they could not be stopped in a great river like the Yukon. Of course, if they overdid it they could cut down the supply of salmon for the upper Yukon.

Mr. LEE. How long is the Yukon?

Mr. NELSON. Approximately 2,000 miles.

Mr. McLAUGHLIN of Michigan. When the fish are stopped by nets, at what depth do they place the nets?

Mr. NELSON. They use gill nets extending several yards below the surface, or make pound traps with a fence that runs out into the river from shore.

Mr. LEE. They do pound netting?

Mr. NELSON. Pound netting and gill netting—just how they fish at this particular place I do not know. I have not been up there since the cannery was established.

Mr. McLAUGHLIN of Michigan. Gill nets could cover quite an extent of the river?

Mr. NELSON. They could, but so far as I have heard they have not yet developed the industry there to the extent of covering the entire river.

Mr. LEE. They can't use gill nets in swift water.

The CHAIRMAN. Are you through with this item?

Mr. NELSON. We need \$2,200 to provide a warden service for bird reservations in Alaska, adequate provision for which is impossible under present limited appropriations. We need this warden in the Aleutian Islands to make an investigation and report on their usability for grazing as no definite information on the subject is available. When people appeal to us for information we are now able to give but little and we ought to be in possession of definite information of conditions on those islands both as to its wild life and of the grazing conditions in order to properly safeguard the birds, and at the

same time foster any use of the islands which may be practicable. The natives on these islands have to make a living there and their welfare must be considered in administering this reservation.

The CHAIRMAN. Are we to understand that it is more of a grazing than of a bird and game proposition?

Mr. NELSON. No, sir; the grazing may develop later. At the present time it is merely an experiment.

The CHAIRMAN. What is an experiment; grazing?

Mr. NELSON. Grazing on the Aleutian Island bird reservation; yes, sir.

The CHAIRMAN. That comes under some other bureau?

Mr. NELSON. No, sir. Under the Secretary of Agriculture the Biological Survey administers all of the Federal bird reservations and any activity to be established within such reservations must have a permit from the Secretary.

The CHAIRMAN. What bureau issues the permits?

Mr. NELSON. The Secretary of Agriculture issues the permits on recommendation of the Biological Survey. It is necessary to control activities on the Aleutian Island reservation and other bird reservations by permits in order to carry out the purpose for which the reservations were established. I might add that a number of the islands on this reservation are now being used for fox farming under permits. These fox farms are owned by natives and a few others.

Mr. LEE. You protect game birds?

Mr. NELSON. We protect the birds.

Mr. McLAUGHLIN of Michigan. Isn't it a better way to determine whether or not these islands are suitable for grazing, to let the private interests go ahead and try it out as they have been doing instead of the Government going to that expense?

Mr. NELSON. We do not expect the Government to go up there and develop the islands. We want to have a representative up there to see what is going on, and to give us information which will tell us whether the birds are being destroyed, and whether it is better for certain islands to be given over to grazing without reference to bird reservations. In other words, properly to administer the reserve.

The remaining increase asked for under this item is to pay for warden service and for the expense of maintaining certain patrol boats that heretofore have been paid by the National Association of Audubon Societies. Under the present law we are now prohibited from accepting such assistance from outside individuals and organizations. The assistance of that society has been eliminated, and we have had to take over the work which they had been helping us to maintain.

Mr. McLAUGHLIN of Michigan. How many men?

Mr. NELSON. A warden's salary on Breton Island and an assistant on Breton Island, and one at Key West. They were helping pay the salaries of three others, and they were contributing the running expenses of three boats.

The CHAIRMAN. My attention has been called to the reindeer in Alaska. Have you anything in this bill for that work?

Mr. NELSON. There is nothing in this bill about it, but that is a thing which interests me very much.

The CHAIRMAN. You have been in Alaska and are familiar with it?

Mr. NELSON. I once lived more than four years in Alaska. I consider that there is a great future for the reindeer industry in that Territory. There are now about 160,000 reindeer up there as a result of importations made by the Bureau of Education. These reindeer were introduced from Siberia and from Lapland to assist the natives on the coast of Bering Sea and the Arctic Ocean to become self-supporting.

The reindeer have remained in the hands of the natives except some of them that were given the Laplanders, who were brought over to help teach the natives to care for them. Some of these reindeer have been sold to white men and they have some large herds, belonging mainly to a Mr. Lindaberg and the Lomen brothers. Reindeer increase rapidly, and the arctic grazing area suitable for them in Alaska is estimated to be sufficient to take care of 10,000,000 of them. That number of these animals may be maintained on these arctic treeless plains bordering the Arctic Ocean and Bering Sea in Alaska.

The CHAIRMAN. How many?

Mr. NELSON. Ten million. This is a new industry that it appears to me should be fostered and its development encouraged by the Department of Agriculture.

Mr. Lomen, one of the present herd owners, was down here last winter and expressed a great desire to have the benefit of the expert assistance of this department in building up the industry and improving the herds. He said that the most of the reindeer herds being in the hands of the Eskimos, they were not handled along proper lines to maintain the herds and improve the quality of the stock. He reported much inbreeding and much scrubby stock, with a lack of any expert advice on controlling the diseases and parasites of the reindeer. In other words, he thought the time ripe for the Department to help the reindeer industry as it now helps the sheep and cattle industry. There is one very effectual way in which the breed can be improved, and that is by capturing some young wild caribou bulls from the Alaskan herds and turning them with the reindeer. The caribou are larger than the reindeer, and interbreeding them is perfectly feasible and would undoubtedly result in increasing the size and hardihood of the reindeer. Reindeer are merely domesticated old world caribou.

The reindeer are badly bothered with flies, which produce "warbles" or grubs in the skin on their backs. One skin sent me has a solid mass of warble scars over the entire back. The reindeer have numerous parasites and diseases, but with the industry trying to get on its feet in Alaska, there is no available help for trying to limit losses from such sources.

The CHAIRMAN. How much money is being expended by the Bureau of Education?

Mr. NELSON. I do not know.

The CHAIRMAN. You said nobody was paying attention to it?

Mr. NELSON. According to my last information, no expert veterinarian or other person skilled in such work is available for helping build up the industry on modern lines.

The CHAIRMAN. Have you knowledge as to the activities of the Bureau of Education?

Mr. NELSON. I know they are promoting education among the natives, and that they are promoting the ownership of reindeer herds among the Eskimos. The reindeer were introduced into Alaska by the Bureau of Education, but so far as I am informed, no one has ever

been sent up there to look after the development of the industry in a scientific way, as is now universal among the stock industries of the United States.

The CHAIRMAN. It might be advisable to have this work transferred to the Department of Agriculture?

Mr. NELSON. There is no question that if the department would take a hand in developing this industry the results would be notable.

The CHAIRMAN. In your opinion, what should be done?

Mr. NELSON. I think that the reindeer industry, as connected with the natives, could properly remain with the Bureau of Education; but it appears to me that the Department of Agriculture should be given a hand in developing it among the people outside of the natives.

The CHAIRMAN. Your contention is that the reindeer should come under the supervision of the Department of Agriculture?

Mr. NELSON. Yes; for the development of the industry among the people aside from the natives. Of course, the natives would get the benefit of whatever was done to improve the herds.

The CHAIRMAN. Why do you divide it?

Mr. NELSON. There would be no division. The Bureau of Education, as I understand it, is merely promoting the ownership of reindeer among the Eskimos. Meanwhile a considerable number of these animals, more than 20,000, I am told, are owned by white citizens of Alaska who desire to develop the industry which promises great things for that region but are handicapped by lack of the expert scientific help such as other stock industries are receiving.

By establishing a reindeer experiment station at a suitable point in Alaska with a skilled veterinarian and animal husbandman, supplied with proper laboratory conveniences, and by other scientific expert assistance the reindeer industry could be given a great impetus at a trifling cost compared with the benefits. This would not in any way duplicate or interfere with the efforts of the Bureau of Education to promote ownership of reindeer among the Eskimos.

Mr. McLAUGHLIN of Michigan. I have the same idea as Mr. Haugen has. As the Bureau of Education is doing a part of that work it might be better to let them extend the work, and not have a part of it done by them and a part of it done under your department.

Mr. NELSON. The work of the Bureau of Education in Alaska has to do only with the welfare of the natives. For it to branch out and establish the kind of an experiment station I have mentioned would be entirely outside their present activities and would be a duplication of the kind of work being done by the Department of Agriculture. In this department we have the corps of scientific veterinarians and others needed in the development of the reindeer industry, which is merely another phase of stock growing based on the domesticated members of a kind of deer. It is purely a Department of Agriculture problem.

Mr. McLAUGHLIN of Michigan. The Bureau of Education, no doubt, could have the same kind of men?

Mr. NELSON. Yes; by building up a new line of work such as this department is now doing.

The CHAIRMAN. In looking up an outside appropriation of \$7,500, I find that an increase of \$1,500 is asked by the Bureau of Education, so a considerable amount is being expended. It seems to me that that amount could be expended to greater advantage through the department that has a force there at present.

Mr. NELSON. That appropriation is, I think, merely for the purpose of administration in promoting the ownership of herds by the Eskimos, keeping records and otherwise helping the natives adapt themselves to this phase of stock growing, and not at all for such a purpose as I have in mind should the department take up the matter. The Bureau of Education would still need that appropriation even though the Department of Agriculture should establish an experiment station up there.

The CHAIRMAN. Give us an outline of what you think should be done. I take it that you are better informed as to that than anyone we could hear.

Mr. NELSON. I think there should be established up there a reindeer experiment station which should have on its staff a competent, experienced veterinarian, a man who has had experience and has good judgment, and an animal husbandman with several other experts who would devote their time to the study of the reindeer, its diseases and parasites; to locate the best source of supply of young caribou to increase the size of the tame animals; to study the forage plants used by these animals and determine the areas suitable for pasturing the herds and what effect reindeer have on the supply of forage and its reproduction. Here is a new industry destined to supply Alaska with all the meat it needs and to supply great quantities to the United States. It will be developed on an area hitherto considered absolutely worthless as a food-producing area. A little money wisely spent now will be repaid in an amazing development. The meat is excellent and small quantities of it have already been marketed at high prices in Seattle, San Francisco, Minneapolis, and New York.

Mr. LEE. The meat is something like the red deer.

Mr. NELSON. A little; yes, sir.

The CHAIRMAN. What do you suggest in the way of development?

Mr. NELSON. I think that the Alaskans ought to be encouraged and helped to develop the reindeer industry, and that one of the first things would be to get some of the native young bull caribou to put in with the reindeer to increase their size, weight, and hardiness.

The CHAIRMAN. You say they would have to be transported?

Mr. NELSON. There are wild caribou on the Peninsula of Alaska. This is about five or six hundred miles by water. They would have to be shipped if taken there; but the largest wild caribou are in the interior of Alaska and could be brought down the Yukon or Kuskokwim River and landed wherever needed.

The CHAIRMAN. They would have to ship them five or six hundred miles or more by boat?

Mr. NELSON. Yes, sir; it is from the Peninsula of Alaska, or from the Tanana River or elsewhere in the interior.

The CHAIRMAN. The first thing would be to catch them.

Mr. NELSON. They should be caught while they were young, in the summer or fall.

The CHAIRMAN. Are there many of them?

Mr. NELSON. Yes, sir; it is estimated that the herd between the Tanana and the Yukon contains about 100,000 animals.

The CHAIRMAN. What would be the expense?

Mr. NELSON. That would be rather difficult to estimate. They would probably cost at least \$100, perhaps \$150, each.

The CHAIRMAN. Would 100 be sufficient to build up the reindeer in Alaska?

Mr. NELSON. That would not be enough for entirely building up the reindeer in Alaska, but that would be a good start, and it would be enough to make a demonstration of the benefits to be derived from such a cross-breeding.

The CHAIRMAN. What would you do with the native stock; destroy them?

Mr. NELSON. No; the herdsmen could continue to raise them as they are now, but they could build up their herds into graded or improved stock.

The CHAIRMAN. I mean the bulls?

Mr. NELSON. Those ought to be made into steers as fast as they could be replaced with better bulls, and when they got to be of a marketable age, kill them for meat just as you would handle cattle by eliminating the poor stock. I have a correspondent who has a reindeer herd on Kuskokwim River. He wrote me that several caribou bulls have come into his herd and lived there for some time, moving around with the herd of reindeer, and then drifting back with the wild caribou again. That indicates how simple it will be to make the cross suggested.

Mr. McLAUGHLIN of Michigan. Does that increase the size of the get very much?

Mr. NELSON. We have no record of what happened where those caribou bulls have served those tame reindeer, as yet.

Mr. McLAUGHLIN of Michigan. In your experience, do those caribou bulls increase the size of the get very much?

Mr. NELSON. No one in Alaska has recorded any experience of that kind. It appears evident, however, if you have a bull reindeer that will dress 200 pounds, and the bull caribou will dress 300 pounds, you are bound to get a larger offspring from the bull that dresses 300 pounds. That is common sense. And, furthermore, it would improve the reindeer stock, stopping the inbreeding of those 160,000 reindeer that are now in Alaska. They are the descendants of about 1,200 imported animals and they are in serious need of new blood.

The CHAIRMAN. How long ago?

Mr. NELSON. More than 25 years ago.

Mr. LEE. You have to feed those animals?

Mr. NELSON. No; they feed themselves. Reindeer and caribou can live under the severest climatic conditions without feeding. They live in the summer time on the moss and other vegetation on the Arctic plains and in winter paw through the snow. The snowfall is not very deep on the Arctic coast plains, rarely ever more than from 1 to 2 feet, and the wind blows it off great areas, so that the vegetation is exposed.

I am convinced that there is a bright future for the reindeer industry in Alaska. The Canadian Government is so convinced of the same thing for the development of the industry in their territory that they have appointed a commission to study the situation, and they are now conducting an investigation. They have employed the explorer Stefansson and he is preparing a full report on the reindeer industry, including that of northern Europe and Siberia.

The Canadian Government, of course, has millions of acres of these Arctic lands which have heretofore been waste. The progress made in Alaska has greatly impressed the Canadians. In this con-

nection it may be added that the newspapers recently announced the formation of a company in Indiana which has applied to the Canadian Government for the privilege of grazing reindeer on a large area on the west coast of Hudson Bay for a period of 30 years. The Council for the Canadian Government has approved of that application.

The CHAIRMAN. Are the tame reindeer that run at large in Alaska owned in common; and is there any restriction on killing them for food?

Mr. NELSON. The tame ones are owned by individual Eskimos, or by individual white men, just like cattle or sheep are in this country. The owners care for their herds and look after them as they would for sheep.

The CHAIRMAN. There is need for this meat in Alaska, is there not?

Mr. NELSON. Yes; meat is needed throughout the Territory and the reindeer herds of the future will supply it in abundance.

The CHAIRMAN. There is a scarcity in Alaska?

Mr. NELSON. Yes; the cattle and sheep industry of Alaska are wholly undeveloped, but once the reindeer industry is well established the Territory will become self-supporting so far as meat is concerned and will export a large surplus.

The CHAIRMAN. I would like information as to the importance of the proposition. The condition was called to my attention by Mr. Lomen, when he was here last year.

Mr. NELSON. It is highly worthy of development, as is indicated by the interest the Canadian Government is taking in it. The Canadian Government has millions of acres of this Arctic land like that in Alaska, which is absolutely worthless for anything else. Now, here, we have an animal that will live on these Arctic plains and stay in good condition the year round, and produces good meat, and good tallow, and produces splendid hides, and is readily domesticated, just as domestic an animal as the sheep.

The CHAIRMAN. How many people has the department in Alaska?

Mr. NELSON. The department has not very many. It has an agricultural experiment station, but I do not know the number of employees.

The CHAIRMAN. This question could be taken up in cooperation with others to advantage?

Mr. NELSON. It could be done in cooperation with the Bureau of Animal Industry.

The CHAIRMAN. I mean with the department as a whole?

Mr. NELSON. Yes; the thing could be handled by the Department of Agriculture perfectly, because it has all of the men and organization for the work. It is merely a matter of having money to conduct the work up there.

The CHAIRMAN. It appears to me that it could be handled to a better advantage through your department than through the Bureau of Education. If it is of sufficient importance, we can take it up with the chairman of the other committee and possibly have it adjusted.

Mr. NELSON. It seems to me, without reflecting any discredit on the Bureau of Education, that the Department of Agriculture could get results which are infinitely better than any results which the Bureau of Education has heretofore been able to obtain.

The CHAIRMAN. This discussion is not intended to reflect on anybody.

Mr. NELSON. No, sir; it is merely a fact that the Department of Agriculture is in the best position to develop any phase of the live-stock industry.

The CHAIRMAN. Can you give us an estimate as to what would be required to encourage this development?

Mr. NELSON. As a rough estimate I think that approximately \$25,000 would be needed to establish and support a reindeer experiment station the first year.

The CHAIRMAN. Has the department any buildings there?

Mr. NELSON. Near Nome is a more or less abandoned military post with good buildings, and rents are cheap in Nome.

The CHAIRMAN. Have you any stations in this vicinity?

Mr. NELSON. No.

The CHAIRMAN. How many houses would they need.

Mr. NELSON. Not very extensive quarters to house and afford laboratory accommodations; also small corrals and sheds as hospital quarters for animals being studied.

The CHAIRMAN. Can you give a rough estimate?

Mr. NELSON. I should say that \$25,000 ought to start the thing.

The CHAIRMAN. Have you any plans?

Mr. HARRISON. Would it not be better to let Mr. Nelson think the matter over and submit a statement later?

Mr. NELSON. I will be glad to do that.

The CHAIRMAN. This is outside of the estimates. My attention has been called to it. It is very interesting and I would like to know what to do in the matter.

Mr. NELSON. Mr. Lomen's greatest desire was to have somebody study the business and help it develop. That is what is needed more than anything else. This can be done by trained men located up there.

The CHAIRMAN. And to improve the herds?

Mr. NELSON. Yes, sir.

The CHAIRMAN. My understanding that inbreeding is the greatest trouble.

Mr. NELSON. That is the greatest trouble. Then, too, my correspondent up there complains that he is losing animals from parasites.

The CHAIRMAN. Would you suggest importing animals or improving the herds you have now?

Mr. NELSON. I would improve the herds of animals that we have in Alaska. We have an abundance of tame animals and can grade them up by crossing with our wild caribou.

The CHAIRMAN. We thank you very much. After you have given this further consideration we will be pleased to have you furnish a statement?

Mr. McLAUGHLIN of Michigan. Mr. Nelson, can you furnish a statement showing what it would take the first year of operations?

The CHAIRMAN. Yes, in connection with these remarks—in connection with this discussion.

Mr. NELSON. I shall be glad to do so. In speaking of transfers of activities to this department I wish to refer to another matter. Some years ago Congress gave to the Department of Commerce, Bureau of Fisheries, jurisdiction over the land fur-bearing animals in Alaska. Neither the Department of Commerce nor the Bureau of Fisheries wishes to have this work, and the recent annual reports of the Secretary of Commerce and of the Commissioner of Fisheries repeat their desire to have the work transferred elsewhere, the Com-

missioner of Fisheries recommending that it be transferred to the Biological Survey, where I think it belongs. I saw Dr. Smith, Commissioner of Fisheries, recently, and he inquired when we planned to take that off of their hands. He said it was a burden to them and that they were not interested in it, as it was entirely outside their interests.

Mr. HARRISON. The transfer of the work was recommended in the report of the Secretary two or three years ago.

Mr. NELSON. There was a bill introduced in Congress two years ago to bring about this transfer but no action was taken. It is a line of work such as the Biological Survey is already doing and its transfer would result in greater efficiency.

The CHAIRMAN. If you will submit a draft of what you want done, the committee will see what it can do.

Mr. LEE. That would have to be done by a special bill.

The CHAIRMAN. It could be done by an agreement in this bill.

Mr. HARRISON. We will prepare a section to accomplish the purpose and submit it in any form you desire if the committee wishes us to do so.

The CHAIRMAN. I believe that would be proper. Of course, we will have to confer with the other committee. If the two committees agree, I think it can be done.

Mr. HARRISON. This is a matter on which the two departments are in complete agreement and both have recommended it in their annual reports.

The CHAIRMAN. Very well; what is the next item?

Mr. NELSON. The next is No. 30, "For the improvement and maintenance of the game preserve in Sullys Hill National Park, in the State of North Dakota." It is proposed to strike out the word "preserves" and insert instead the word "preserve." There is just one preserve and not two. The appropriation is for \$5,000. That is the amount that was appropriated last year, and there is no change.

The next is item No. 31, "For investigating the food habits of North American birds and mammals in relation to agriculture, horticulture, and forestry," etc.

The appropriation under this item covers four lines of work: (1) Investigation of the food habits of North American birds and mammals in relation to agriculture; (2) the destruction of predatory animals, such as wolves, coyotes, and others; (3) the destruction of injurious rodents, such as prairie dogs, pocket gophers, and others; and (4) experiments in rearing fur-bearing animals.

For the destruction or control of rodents injurious to agriculture we now have a complete organization in 16 of the Western States, where these pests are most numerous. Our experts in charge of the State organizations work in cooperation with the State extension service and through the county agents.

The losses of crops through depredations of rodents annually is estimated at more than \$150,000,000, and the losses of forage products from this source is an equal sum, or a total of about \$300,000,000 destroyed by these pests each year.

Since the Biological Survey developed improved and effective methods of destroying these pests, the farmers have become deeply interested and are joining in the campaign in rapidly increasing numbers. Last year more than 135,000 farmers cooperated in this work and a still larger number are doing so this year.

The demand for our participation in this work has grown more rapidly than our available funds will permit. We have requests for establishing a regular organization in three additional States which we have been unable to meet.

The rodent pests while present and injurious to agriculture in every State are most serious in the States from the western part of the Mississippi Valley to the Pacific coast. In the Mississippi Valley and the Eastern and Southern States various kinds of mice are the most generally distributed and serious pests. As a sample of their destructiveness I may mention the case in Winchester County, Va., where in two years small field mice about 3 inches long, known as the pine mouse, killed bearing apple trees valued at about \$250,000.

Mr. McLAUGHLIN of Michigan. There must have been a lot of mice.

Mr. NELSON. There were many of them, but they might readily have been destroyed and the trees saved, as we demonstrated to the orchard owners when we were called in to help protect the orchards.

These mice work underground and girdle the roots by gnawing off the bark. The tree dies suddenly and the owner is often unable to understand what has happened. These pests are found throughout the Eastern States as far as New Hampshire, and we are often asked to help stop their ravages.

The CHAIRMAN. How did you destroy these mice?

Mr. NELSON. We powder strychnia on small cubes of sweet potato or similar vegetable and put the baits in their runways or holes. The mice eat such baits readily and are killed.

Mr. McLAUGHLIN of Michigan. In this item 31—

Mr. NELSON (interposing). The extent of the rodent operations are indicated by the fact that our field men during the past year guided the farmers in the destruction of these pests on nearly 15,000,000 acres of farm lands, and through our own field parties destroyed most of the rodents on 1,500,000 acres of the public domain, largely in National Forests. Prairie dogs and ground squirrels have been nearly exterminated over enormous areas and have been absolutely exterminated on large tracts.

The CHAIRMAN. Will you kindly give the States from which they have been eliminated?

Mr. NELSON. They have been entirely eliminated from large areas in New Mexico, Arizona, Colorado, and North Dakota, but not from the entire States. The work is progressive and the areas to be covered are very great.

The CHAIRMAN. Doctor, we started in with a heavy appropriation and increased it last year. Congress will now want to know what progress you are making. We hoped that in view of your effective work possibly some of these appropriations might be cut down.

Mr. NELSON. Mr. Chairman, I think consideration of the magnitude of the task we have in hand is sufficient to show that it will require a number of years to complete it. Rodent pests infest hundreds of millions of acres of public and private lands and destroy more than \$300,000,000 worth of crops and forage each year. Predatory animals infest 18 Western States, where they destroy more than \$20,000,000 worth of live stock each year. We are guiding a campaign to destroy these pests and lessen the losses year by year until they are reduced to a nominal sum. Our work is demonstrating that this is practicable at a nominal cost compared with the increased returns to farmer and stock grower.

The best proof that our work is getting the desired results lies in the fact that when we began the work against injurious animal pests no funds were being put up by the States to help in the work. This year the States are putting into cooperation with us for the destruction of rodent pests more than \$900,000, and for destruction of predatory animals more than \$225,000. More than 135,000 farmers are actively cooperating in rodent campaigns, and thousands of stockmen in the predatory animal and rodent work. The legislatures of 13 States have made appropriations for this work, usually specifying that they are to be expended in cooperation with the Biological Survey. Other funds come from counties, local associations, and individuals. The interest of the people where the work is being done and the large funds they are putting into cooperation with us is proof not only that we are getting effective results, but also that the work is one of serious importance to the welfare of the farmer and stockman. In the end we expect to practically exterminate some of the most destructive of the animal pests and to control the others.

The CHAIRMAN. What do you mean by control?

Mr. NELSON. To reduce their numbers about cultivated areas.

The CHAIRMAN. Isn't it possible to destroy them?

Mr. NELSON. Some of the small rodents are so numerous over great sections of the country that to exterminate them completely would cost too much. The losses by such rodents can be controlled by destroying the animals about the farms from year to year. That rodent work is a profitable investment on the farm is indicated by the statements we have received from farmers that they profited from \$15 to \$20 for every dollar spent in the destruction of these pests.

The CHAIRMAN. Are cooperative funds available from all the States?

Mr. NELSON. From practically all of the States from the western border of the Mississippi Valley to the Pacific coast, which is the area in which occur the greatest losses from rodents and predatory animals. In that region we are conducting great campaigns and are seriously handicapped by being able this year to allot only \$102,000 for rodent work with which to meet and offset the \$901,000 being put up in the States. The States are constantly urging us to do more work on Government lands adjacent to cultivated areas on which they are destroying rodents and are having their lands reinfested from the rodents living on the Government lands. This brings in the need of keeping the rodent work going as a continuous operation. If the work stops, or is reduced for a single season, the areas in which we have exterminated the pests will be reoccupied by them from surrounding territory, and areas on which have been killed from 75 to 95 per cent of the pests will be restocked by the breeding survivors which would be destroyed by a follow-up treatment.

California is spending about \$335,000 this year in rodent destruction and has criticized the failure of the Government to meet them in this work by destroying the rodents on the adjacent public domain. This we would like to do, but it is an impossibility with our present funds.

Before the Biological Survey took up the work of destroying animal pests many millions of dollars had been spent in fighting these pests by sporadic campaigns, sometimes by the States, sometimes by communities or by individuals, but always without continuity of

organization and plan. The result was complete failure to accomplish any permanent result. The success of our endeavors has been due to two factors—first, the development of much more effective and economic methods, and second, by a definite plan for continuous community action until the pests are actually exterminated, wherever this result is practicable. I have already stated the evidences of local appreciation of our methods by the amount of money put into cooperation in addition to the work of many thousand farmers and others.

Mr. McLAUGHLIN of Michigan. You cooperate with the States in taking care of these lands and privately owned lands?

Mr. NELSON. Yes, sir. For instance, in North Dakota, where one of the largest campaigns against rodents is going on, we supply an expert who passes on his knowledge to the county agents and the farmers.

Mr. McLAUGHLIN of Michigan. I am glad to know that. I am glad to hear you say that, because almost every bureau that we have talked with says that the county agent is no good, and that it is necessary to have an expert from the bureau go around to do the work himself.

Mr. NELSON. The county agent organization has enabled us to greatly increase the usefulness of our work. Through the county agents we get the farmers organized and in a receptive mood to receive the necessary instructions, and the carrying out of the campaigns on such a great scale as at present would be impossible without their aid. At the same time it is necessary for us to keep our experts in the States to keep in touch with the work and to give demonstrations and otherwise maintain the efficiency of the work. While the county agents are very helpful, they have a multitude of duties and can not concentrate on rodent work or any other one subject except temporarily. This work calls for the continuous activity throughout the year of our expert as the chief center of education and organization in this campaign. Our results have been vastly increased by the help of the county agents.

Mr. LEE. You do this by simply poisoning oats?

Mr. NELSON. By mixing specially prepared poisons with oats, barley, or other vegetable food suited to the special kind of rodent to be destroyed.

Mr. McLAUGHLIN of Michigan. I can understand very well why you do this on Government lands, national forests, and so on, why you should eliminate them from such lands and from certain of those places where the land adjoining is infested, but I don't quite understand how the Government can go on this private land and do this work.

Mr. NELSON. We do not do the actual work on the private lands. We demonstrate methods and instruct the people how to prepare and distribute the poison, aid them in organizing themselves to make the work effective and results permanent, and they pay all operating costs on their holdings.

Mr. McLAUGHLIN of Michigan. I asked you, in my first question a moment ago, if the department did this on private land, and you said yes.

Mr. NELSON. I beg your pardon, I did not understand you. We cooperate with the States by having our experts supervise and direct

the whole campaign on Federal, State, and private land, correlating the entire operation, working through county agents in instructing and organizing the farmers, guiding them in the employment of the most efficient measures on the private holdings, the operating cost being borne by the landowners. On Government lands we usually hire men and do the work ourselves. In some places, however, the farmers are so desirous to keep their crops free from rodents that they volunteer to put out the poison on Government land adjoining their farms if we will supply the poisoned grain. We have had a lot of free work done for the Government in that way, and considerable areas of Government land has been cleaned by volunteer labor, because in doing that they guard against the reinvasion of their own lands.

Mr. McLAUGHLIN of Michigan. I think that kind of work should go on, but not on private lands. Teaching them how to do it is all right, but there is a growing tendency on the part of the people in many parts of the country to ask the Government agents, men from the different bureaus to come and actually do the physical work, besides bearing the expense, which I do not approve.

Mr. NELSON. The part we take with regard to private land is that of guiding the work and teaching the people the most effective methods of preparing and handling the poison.

Mr. McLAUGHLIN of Michigan. I would like to call your attention to item 31. It seems to me that there is no need of segregating this proposition. If you will read the different sections, the first one includes experiments and demonstrations in destroying wolves, coyotes, prairie dogs, gophers, and other animals injurious to agriculture. In the second item below is the provision for destroying wolves, coyotes, and other animals injurious to agriculture, and in the next paragraph is the provision for the protection of stock and other domestic animals, through the suppression of rabies and by the destruction of wolves, coyotes, and other predatory wild animals. The work there is practically all the same, and we divide it up, \$15,000 for one, \$125,000 for the other, and so on. The work is all the same. Why segregate it?

Mr. HARRISON. The appropriation should be provided in one sum instead of being divided into three. The present arrangement causes a lot of difficulty in administering the work.

Mr. McLAUGHLIN of Michigan. I think the present draft is inexcusable.

Mr. HARRISON. Mr. McLaughlin, nothing can be said about the present draft that would be too strong.

The CHAIRMAN. This language is, "that of this sum not less than \$123,800 shall be used on the public lands, national forests, and elsewhere in the Western and Northwestern States." So if you don't expend the \$123,800 they will send you to jail.

Mr. HARRISON. I suppose that is a possibility.

Mr. McLAUGHLIN of Michigan. The first paragraph is "public domain," and the next one is "public lands," which is public domain, and the next one "forests," which is just the same.

Mr. HARRISON. When you first mentioned the matter, I was talking to Mr. Haugen about it, and I told him that the paragraph is the most complicated in the whole bill.

Mr. McLAUGHLIN of Michigan. That is saying a good deal; I do not know about that.

Mr. HARRISON. That is true. We would be very glad, at your request, to submit a revision.

Mr. NELSON. It could be simplified.

Mr. HARRISON. And we would be glad to do it.

The CHAIRMAN. These States might want to have this language in the draft.

Mr. HARRISON. We could separate the three lines of work.

The CHAIRMAN. This matter was discussed in conference. The Senate conferees were determined to have this language in, to which we finally agreed. It is by no means the proper language.

Mr. HARRISON. We can set out the three different lines and show the amount that will be expended for each.

Mr. McLAUGHLIN of Michigan. You could indicate the amount that is to be expended for each one. Here is one place it says that 15,000 shall be used.

Mr. HARRISON. It says, in effect, that we "must" use that amount.

Mr. McLAUGHLIN of Michigan. In another place it is provided that you have got to spend \$123,800. You can't expend \$123,700; but you must get clean up to the \$800, and here is another place where it says that of this sum not more than \$125,000 shall be expended. You can spend \$10 and comply with that paragraph. So, if you can find another place that is worse than this one, Mr. Harrison, I think you are going some.

Mr. HARRISON. I think this is the worst.

Mr. McLAUGHLIN of Michigan. It is pretty bad.

Mr. HARRISON. It is undoubtedly the worst.

Mr. McLAUGHLIN of Michigan. I think it ought to be revised.

Mr. HARRISON. Is the committee willing to let us submit a new provision?

The CHAIRMAN. Yes; I believe it would be best to do so.

Mr. HARRISON. We can present three items providing separately for the three lines of work.

Mr. NELSON. There are four lines of work that have to be mentioned, but the wording of the lump sum could be so stated as to carry on those four lines of work.

Mr. HARRISON. There are only three, the investigational and experimental work, the rodent control work, and the predatory animal control work.

Mr. NELSON. There is fur farming.

Mr. HARRISON. That is investigational. That would come under the investigational item.

The CHAIRMAN. You could set out the amount of each item.

Mr. HARRISON. That would be entirely agreeable to us, wouldn't it, Mr. Nelson?

Mr. McLAUGHLIN of Michigan. If there are three kinds of work—

Mr. NELSON. The only point is that predatory animals and rabies are pretty bad in a large section of the stock-growing country, and the stock growers might think that we were trying to leave something out.

Mr. HARRISON. That can be covered in the new language.

Mr. McLAUGHLIN of Michigan. Here in the same sentence you have included experiments, demonstrations, and also investigations and experiments.

Mr. HARRISON. Yes, sir; there is nothing you can say about the present arrangement of the paragraph that would be too bad, Mr. McLaughlin.

Mr. McLAUGHLIN of Michigan. We have taken notice that you have said a good word about the county agents, but the others that have come before the committee, when we ask them why the county agent can't do a certain thing they always say he does not know enough.

Mr. NELSON. It might interest you to know that in New Mexico the services of county agents were continued in several counties because of the success of the rodent work.

The CHAIRMAN. How about the extension of eradication work?

Mr. NELSON. We propose to extend it to Iowa, Minnesota, and Texas as soon as we have the funds.

Mr. McLAUGHLIN of Michigan. You say they are asking? How is it done?

Mr. NELSON. It is done through the extension service of the agricultural colleges.

Mr. McLAUGHLIN of Michigan. I do not know any reason why you should go in there and do that work in States where there is no public lands.

Mr. NELSON. In such States we merely conduct demonstrations and furnish expert guidance to insure the best results. The work itself is done by the people of the States and not by the Government.

Mr. McLAUGHLIN of Michigan. It is a simple matter; you have discovered the best kind of poison, and how to apply it to make it effective. Why can't they take it up and do it themselves?

Mr. NELSON. Because we find that most people are a little careless and often overlook some small but necessary detail. Furthermore we find conditions vary and the habits of the animals vary in a way that often tries the skill of our most experienced men to get good results. To depend on written instructions at times may give good results but practical field experience on a large scale in many States has shown conclusively the absolute need of expert leadership. When left to do the work wholly on their own guidance people often fail to get proper results.

Mr. McLAUGHLIN of Michigan. Who suffers as the result?

Mr. HARRISON. The country as a whole.

Mr. McLAUGHLIN of Michigan. No; I do not think it does.

Mr. NELSON. For instance we receive complaints that poison prepared according to our formula by certain farmers is worthless. We send a man to investigate and find that some small part of the formula was omitted or the poison had been kept too long or had been improperly distributed and the community had been discouraged. Our expert makes a demonstration in preparing and distributing the poison, gets good results, and the people at once go on with the campaign and make a good saving of crops.

Mr. McLAUGHLIN of Michigan. I do not see the reason.

Mr. NELSON. Our object is to carry on an educational campaign for the elimination of these rodents and with them the heavy losses to agriculture by them.

Mr. McLAUGHLIN of Michigan. It is hard for me to see the difference in teaching people how to kill these rodents, and in teaching them how to pull the weeds out of their corn.

Mr. NELSON. Another phase of the rodent work is the destruction of house rats. The annual losses caused in this country by house rats is about \$200,000,000.

The CHAIRMAN. You tell them how to destroy them?

Mr. NELSON. Yes; we advise as to the best method of destroying them by traps, poison, and better still to rat-proof buildings and all food storage places such as warehouses, cornercribs, etc. A moderate expenditure in rat proofing is very effective in reducing losses from this source. In other words, safeguard the food so that the rats can't get it, and when you deprive the rats of food you will eliminate the rats.

If you build the granary so that the rats can not get in it, you eliminate the rats; if you build the granary so that the rats can get in it and have a free run, and plenty of food the rats will multiply right up to the available supply of food.

Mr. McLAUGHLIN of Michigan. How many men have you employed in that kind of work?

Mr. NELSON. We have one man who devotes a good part of his time to this kind of work. We have had calls for advice and help from many sources, and we have issued a bulletin on the subject. People appear to be more or less helpless when it comes to facing a problem presented by any kind of animal pest largely through lack of information as to their habits. For example, a large milling company of Louisville, Ky., reported serious losses from rats and asked our advice. We sent a man down there and he found that near the mill there were a lot of chaff and screenings, forming splendid homes for the rats, and that building was so constructed that the rats could get in without trouble. The owner said that it was costing him about \$3,000 a year to repair grain sacks, without reference to the amount of food that was destroyed by these rats.

Our expert pointed out how the building could be rat proofed for a few hundred dollars. The result was that the rats were practically eliminated from his mill and warehouse. That looks like a simple proposition, yet here was a man having losses amounting to thousands of dollars a year, but he had no practical idea how to stop them.

When the war came on the Army took over the Bush Terminal warehouses in New York, a series of buildings eleven blocks long, and from one to three blocks deep. They were to be used for the storing of supplies for the Army. The quartermaster in charge wrote us that the place was swarming with rats which must be destroyed before the supplies could be put in and asked for advice. We at once sent an expert who found that poison could not be used, and after examining the premises laid out a continuous trapping campaign on a large scale. The advice was followed promptly by the purchase of 1,200 traps of the kind suggested and four men set to trapping rats. That was the 1st of January, 1918; the 1st of January, 1919, I received a letter from the quartermaster in charge thanking us for our assistance and reporting that for some time after they began trapping they had taken a barrel full of rats day after day, and that at the end of the year they had trapped between thirty-five and fifty thousand rats. He added that their total losses from rats during the year had not exceeded \$50. In other words, the advice which the department gave, through one man spending a day up there, resulted in saving a very great sum to the Government.

The CHAIRMAN. Doctor, we have a number of very important items. Have you finished your statement?

Mr. NELSON. I haven't finished the statement. This is on the rodents. I think it may be well to give a few items showing what some rodents destroy.

Prof. Nabours, of the State College of Agriculture, estimated that last year the pocket gophers in Kansas destroyed 10 per cent of the alfalfa crop. The crop that year was valued at \$50,000,000. So that there was \$5,000,000 lost from that one kind of rodent in the State of Kansas in one year.

The effectiveness of the methods for destroying this pest was shown down at Hearne, Tex., when the quarantine against the pink cotton boll worm was put into effect. The farmers were advised by the Agricultural College to plant peanuts, but the pocket gophers ate them as fast as they were planted. On request we sent a man to help control the gophers. He soon demonstrated how to kill the gophers, a community campaign quickly eliminated the pests and a good crop of peanuts was the result.

A few months ago I received a telegram from an American firm in Mexico City saying that a swarm of field mice had suddenly attacked and was destroying a large area of wheat belonging to some Americans and asked advice by telegram. Our advice was followed and the crop saved. In the State of Vera Cruz, Mexico, some American owners of a sugar cane plantation after spending thousands of dollars fighting gophers unsuccessfully asked advice to save their plantation from complete destruction. Our suggestions enabled them to save their crop. The devastations of pocket gophers in the alfalfa fields are examples of the destructiveness of these pests.

Mr. McLAUGHLIN of Michigan. Why don't you telegraph to them as you did to Mexico?

Mr. NELSON. The destruction of these pests in alfalfa fields is not so simple or these losses would have been long ago eliminated. It will require an investigation to determine the best methods and then an educational campaign to teach the methods to the farmers.

Mr. McLAUGHLIN of Michigan. What is the use of them asking the Government to send a man in there to do something which they can do themselves?

Mr. NELSON. The object of our work will be to give the farmers the benefit of the expert knowledge we have secured in dealing with such problems through years of investigation and experience. The necessary information to control these losses will be passed on to the farmers through our cooperation with the county agents.

Mr. LEE. Mr. Chairman, before we take up the next item——

The CHAIRMAN. Are you through with this item?

Mr. NELSON. No; I wish to give something about the predatory animal work which is covered in this item. The plague of rabies among predatory animals existed in five States and was spreading when the first appropriation was made for its control. Before we could get the work well established it spread into the sixth State, Utah. Since then we have stopped its spread and held down its ravages to a great extent. Renewed outbreaks of it occur here and there as has been the case in Oregon, Nevada, and Utah within a few months but we soon suppress them. If this control should be removed the disease would spread all over the Western States.

In our predatory animal work, including rabies, we have taken the skins of over 95,000 predatory animals, which includes more than 2,200 big gray wolves. Single wolves are known to have killed anywhere from one thousand to five thousand dollars worth of live stock in a year.

The CHAIRMAN. How much money have you turned into the Treasury from these furs?

Mr. NELSON. We have turned into the Treasury to date more than \$209,000 from the furs from predatory animals taken by Government hunters.

The CHAIRMAN. And that is to be deducted from the appropriation?

Mr. NELSON. That would be deducted from the appropriation; as so much back to the Government from this work. That sum is not for one year but for the period since we began this work.

The CHAIRMAN. How much did you turn in last year?

Mr. NELSON. \$76,179.

Some of the predatory animal hunters, in occasional months, pay the Government a profit on their salary, getting skins worth more than their salary. In summer, however, the animal skins are worthless. The States are putting up cooperative money to work with us, but less than for the rodent work. They are putting up about \$225,000 for the predatory animal work, as against over \$900,000 for the rodent work.

Mr. McLAUGHLIN of Michigan. Is that on public lands out there where that work is being conducted?

Mr. NELSON. The predatory animal work is very largely on the public lands, because it is mainly on the national forests, and other wild public grazing land where the predatory animals breed and live. This work saves the lives of large numbers of stock which graze on the public domain.

It will interest the committee to know that we have several women trappers. Two women came up to Nevada from Arizona and asked to be employed as trappers. We tried them and they were found to be as effective as men, so these two women are on the rolls. They turn in, on an average, as many skins as the men trappers.

One of our trappers spent some time trying to get a notorious cattle-killing wolf; and during the period before capturing him found 23 freshly killed calves that had been destroyed by that wolf. We have record in another case where a mountain lion killed 50 calves and 3 colts before our men killed him.

In many cases it can be determined what individual wolf or other animal has done the killing from its having lost a foot or had it crippled in a trap so its track is easily distinguished.

Some of these animals have tremendous records, and are, of course, exceedingly difficult to get. A reasonable estimate of the saving of live stock through the predatory animals taken by our hunters last year amounts to more than \$5,000,000. The saving of crops through our rodent campaign based largely on estimates of farmers amounts to about \$15,000,000.

The next part is fur farming. We have an experimental fur farm in New York State. Fox farming has become an established industry, and we are running an experimental farm and working out methods of feeding and otherwise trying to develop this new industry. Fur farms are being established all along the northern tier of States. Fox farming is developing rapidly in Alaska and Canada as well. There appears to be a great future in the business due to the increasing value of furs as the wild fur animals are decreasing.

I merely want to call your attention to the fact that at the last sales the prices of muskrats were up to \$3.90, mink over \$20, and coyote more than \$20.

The final section of this appropriation is for the investigation of birds, to determine the useful species and to provide methods of increasing their number; also to determine the injurious species, and methods of destroying or controlling them.

Mr. CHAIRMAN, in connection with the rabies work, one item I omitted I would like to put in here. Up to 1918, 1,437 people had been bitten by rabid animals, and 47 had died from it, in the States where we are working to destroy the animals which spread this disease. That, Mr. Chairman, is all of this item.

The CHAIRMAN. It is very important work. There is no question about it.

Mr. NELSON. The next item is No. 32, "for biological investigations, including the relations, habits, geographic distribution, and migrations of animals and plants, and the preparation of maps of the life zones, \$24,400." That covers the scientific investigational activities of the bureau, and no increase is requested. It is the fundamental work of the Biological Survey upon which it was engaged before it took up the economical work. That is very necessary for the continuance of the effective economic activities of the bureau.

The next item, No. 33, "for all necessary expenses for enforcing the provisions of the migratory bird-treaty act of July 3, 1918, and for cooperation with the local authorities in the protection of migratory birds, and for necessary investigations connected therewith." The administration of this law is largely police work, done throughout the United States to enforce the provisions of the migratory bird treaty act. Under our present appropriation we are able to carry only about 38 full-time game wardens, less than one to a State. I think it will be admitted that one man or less than one man to each State is an inadequate number to enforce a Federal law throughout the country. The result of our inadequate force is that the violators of the law are beginning to take advantage of the situation in wholesale fashion in some sections of the country. It will be necessary to have more men if we are to have the treaty and the law properly respected.

Mr. McLAUGHLIN of Michigan. You have 37 now? How many men will be employed?

Mr. NELSON. Under the new appropriation, I think it gives us 55 paid wardens, and on part salary, we will have 100 deputies, and that would enable us to police the country in a far more satisfactory way than at present. We need enough wardens so that we can be represented in each State. That appears to me to be obvious. Our wardens are all acting in cooperation with the State game wardens, and in that connection I might say that the State game service, and the State game commissioners, are expressing more and more their appreciation of this Federal law, and the assistance it is in helping make more effective the protection of game in the States.

Mr. McLAUGHLIN of Michigan. Is that so in all States? Do all of the States feel the same way about it?

Mr. NELSON. With the exception of one or two States, we are having the most friendly relations. In general throughout the country we have the most cordial cooperation and have many expressions of appreciation for the cooperation we give in return. With the migratory bird work is combined the administration of the Lacey Act. Through this we can help the State game officials in controlling illegal shipments of game.

Mr. McLAUGHLIN of Michigan. I asked that question because I thought some of the States were opposed altogether to the migratory bird law.

Mr. NELSON. In the beginning, there was some suspicion among some State game officials as to the effect the law would have on the State game laws, but this has passed. There was a strong fight put up by many men who desired a continuance of spring shooting. Most of this antagonistic feeling has disappeared, and the better element of sportsmen throughout the country are strongly in favor of the law. In common with the State game commissions they report a great increase of migratory game as a direct result of the Federal law and especially to the abolition of spring shooting.

The reports coming in this season agree that there are far more migratory game birds than for many years. The result of this law has been astounding, and many people who were strongly for spring shooting have become changed to favor the law. One sportsman in Illinois recently remarked: "I have always been in favor of spring shooting, but from what I have seen this fall in the increase of game birds, undoubtedly from the results of this law, we are whipped. I am through." He says, "I think the law is a good thing." And that is a sample of the change in sentiment among many in various parts of the country who opposed it in the beginning. They feel now that the migratory-bird law is a good thing.

The CHAIRMAN. How much money has been appropriated for the enforcement of the Lacey Act?

Mr. NELSON. Twenty-two thousand dollars. That is an item which is combined with this appropriation.

The CHAIRMAN. You are cutting that down by \$1,500? The appropriation last year was \$22,000, and this year you are asking for \$20,500.

Mr. NELSON. That is on account of transfer of a clerk.

The CHAIRMAN. What is the next item?

Mr. NELSON. The next item is No. 34, "For general administrative expenses connected with the above-mentioned lines of work, including cooperation with other Federal bureaus, departments, boards, and commissions, on requests from them."

We are asking for a small increase here to meet the increased demands on the part of other bureaus for cooperation, and also due to the addition of one clerk to our administrative office.

Mr. CHAIRMAN. The increase is \$4,240?

Mr. NELSON. Yes, sir; \$1,800 of which goes to a clerk, and the rest is for general expenses, mostly traveling expenses, when men are sent out on request.

That is all, I believe.

The CHAIRMAN. You say your total increase is about \$80,000?

Mr. McLAUGHLIN of Michigan. No; it is only about \$23,000.

The CHAIRMAN. The total for the Biological Survey.

Mr. McLAUGHLIN of Michigan. That would be about \$36,000.

Mr. NELSON. The total increase asked for the bureau amounts to \$235,835, under the following items: Maintenance of reservations, \$5,135; food habits of North American birds and mammals, etc., covering the rodent and predatory-animal work, \$118,960; enforcement of migratory-bird treaty act, \$107,500; administration, \$4,240.

Mr. HARRISON. Mr. Chairman, there is another matter in which the Biological Survey is interested. I refer to item No. 24, on page 289, and Mr. Nelson will explain it briefly.

The CHAIRMAN. Has the migratory-bird treaty act been tested in the district courts?

Mr. NELSON. Six district courts have declared in favor of the constitutionality of it. No district judge has declared against it.

The CHAIRMAN. Has it come to the Supreme Court?

Mr. NELSON. Yes; it is before the Supreme Court. The attorney general of Missouri, when the law was passed, declared that he considered the law was unconstitutional, and he didn't propose to obey it. He proceeded to take a gun and go hunting out of season, and one of our wardens promptly arrested him and brought him into court. He retaliated by trying to get an injunction against the enforcement of the law in Missouri, on the ground that the law was unconstitutional. He was overruled and has appealed the case to the United States Supreme Court, where it is now on the calendar.

Mr. McLAUGHLIN of Michigan. What action did the district court take on the case when he was first arrested?

Mr. NELSON. I think the injunction was denied, and so he appealed. Six district judges in various parts of the country have declared the law constitutional.

The CHAIRMAN. You mean Federal courts?

Mr. NELSON. Yes, sir.

PROTECTION OF EMPLOYEES OF FOREST SERVICE AND BIOLOGICAL SURVEY.

Item No. 24, on page 289, for the protection of employees of the Forest Service and the Biological Survey in the performance of their duties. The duty of enforcing Federal laws or regulations falls, in some cases, upon employees of the Forestry Service and in some cases upon those of the Biological Survey. In doing this necessary police work our men often deal with desperate characters who are vicious and resist interference. One of our wardens was assaulted by a man in a hotel office in Maryland. This man resented the migratory-bird law, and without any provocation suddenly struck and knocked down and beat up one of our men because he was a Federal game warden. We have wardens whose duties are to protect Federal bird and game reservations. In many cases these men have been threatened and abused in performance of their duties and have no protection under any Federal law. It is a matter of common knowledge that game wardens are being killed at intervals all over the country by lawless characters who resent any control. And as it stands now our men have no protection. We send a man out to do police duty for us and do not give him any Government protection. He is at the mercy of any ruffian who wishes to attack him.

Mr. McLAUGHLIN of Michigan. You are right, Doctor, but you name the men employed in the Bureau of Animal Industry, you name the men employed in the Forest Service, and in the Bureau of Biological Survey. Are there not other bureaus that should have this same protection? Why do you pick out those in particular, Mr. Harrison?

Mr. HARRISON. The law now protects employees of the Bureau of Animal Industry, and it is proposed to extend it to the employees of the Forest Service and the Biological Survey. The proposed amendment is confined to the two latter bureaus because they are

the only cases that have been presented to the Secretary's office. Personally, I think it would be better to adopt a provision protecting all employees of the department while engaged in the prosecution of their duties under laws passed by the Congress of the United States. The Bureau of Chemistry is engaged in regulatory activity, but its inspectors do not have the power of arrest.

Mr. McLAUGHLIN of Michigan. Is it your idea only to have it apply to those that have the power of making arrests?

Mr. HARRISON. Not necessarily. The wardens of the Biological Survey and under certain conditions the rangers of the Forest Service have the power of arrest. The employees of the Bureau of Animal Industry are engaged in the enforcement of quarantine regulations and in the execution of meat-inspection law, and the present law was adopted to protect them against interference in the performance of their functions.

Mr. McLAUGHLIN of Michigan. If there are other bureaus, would it not be well to have them all included in the law, or have they broad ones such as you speak of?

Mr. HARRISON. I think it would be, and I shall be glad to take up the matter with the other bureaus and canvass the situation with them.

Mr. McLAUGHLIN of Michigan. This will be subject to a point of order.

Mr. HARRISON. Yes; I assume so.

Mr. NELSON. It would undoubtedly be useful to have such a law, because every now and then there is a case where employees are trying to enforce regulations and get into trouble with some viciously minded person.

Mr. McLAUGHLIN of Michigan. You are right, but it is a question of how to do it.

Mr. HARRISON. The Bureau of Chemistry probably would be the only other bureau involved. Their inspectors are required to take samples.

Mr. McLAUGHLIN of Michigan. They do not do this by force?

Mr. HARRISON. No; nor have they the power to go into an establishment and inspect it against the owner's will. There is no authority under the law for that.

Mr. McLAUGHLIN of Michigan. So these may be the only ones after all?

Mr. HARRISON. These may be, but I have not canvassed the situation thoroughly with that thought in mind. I shall be glad to do it, Mr. McLaughlin, and I will let you know the result.

Mr. LEE. Are you through for this evening?

Mr. NELSON. Yes, sir.

The CHAIRMAN. We are very much obliged to you.

Mr. NELSON. Unless you think there is something else, Mr. Harrison.

PER DIEM ALLOWANCE FOR TRAVELING EXPENSES.

Mr. HARRISON. There are other matters in the miscellaneous section which are of interest to all bureaus. We are suggesting that the committee include a provision in the bill increasing the per diem that may be paid to employees when they are traveling on official business. The limit now is \$4 in the case of per diem in lieu of sub-

sistence and \$5 in the case of actual traveling expenses. You know, gentlemen, that nobody can travel these days for any such sums.

The CHAIRMAN. You have it up to \$7?

Mr. NELSON. Seven dollars for actual traveling expenses and \$6 for per diem. The present rates are \$5 for actual traveling expenses and \$4 per diem. To give you a practical illustration, I expect to go to New York in connection with our work next week. I telegraphed to the Hotel Pennsylvania to ask for a reservation of a room because the last time I was in New York I spent two hours in a taxicab trying to find one. They replied that they would make a reservation for \$5. So if I eat I will have to do so at my own expense and not on Government account. We are up against that sort of thing all the time.

Mr. HENDERSON (Assistant Chief of the Bureau of Biological Survey). I tried eight hotels and got one for \$3.50.

Mr. LEE. Are we through, Mr. Chairman?

The CHAIRMAN. That is all, I believe.

(Thereupon, at 4.05 o'clock p. m., the committee adjourned subject to the call of the chairman.)

Activities under lump fund items, Bureau of Biological Survey.

Projects.	Allotment, 1920.	Estimate, 1921.	Increase.
Maintenance of mammal and bird reservations:			
(a) Supervision.....	\$5,000	\$5,000	.....
(b) General maintenance of reservations and refuges.....	15,900	21,035	\$5,135
(c) Montana National Bison Range.....	4,000	4,080	.....
(d) Wind Cave National Game Preserve.....	2,000	2,000	.....
(e) Winter elk refuge.....	5,200	5,200	.....
(f) Restocking reservations.....	2,500	2,500	.....
	34,600	39,735	5,135
Sullys Hill national game preserve.....	5,000	5,000	.....
Economic investigations:			
(a) Supervision.....	10,979	15,870	4,891
(b) Destruction of injurious mammals.....	87,281	165,450	78,169
(c) Relation of native and introduced birds to agriculture.....	18,890	24,890	6,000
(d) Rearing fur-bearing animals.....	8,500	10,200	1,700
(e) Destruction of ground squirrels on national forests and other public lands.....	15,000	15,000	.....
(f) Destruction of predatory animals on national forests and public domain.....	198,800	227,000	28,200
(g) Suppression of rabies in predatory wild animals.....	125,000	125,000	.....
	464,440	583,400	118,960
Biological investigations:			
Supervision.....	3,300	3,300	.....
Investigation of birds and mammals of the public domain.....	6,500	6,500	.....
Biological survey of the States and Territories.....	13,700	13,700	.....
Bird migration.....	900	900	.....
	24,400	24,400	.....
Enforcement of migratory bird treaty act and Lacey Act:			
Supervision.....	13,500	20,400	6,900
Protection of migratory birds.....	107,700	198,050	88,350
Investigation of migratory water fowl.....	10,000	20,000	10,000
Interstate commerce in game.....	11,750	14,000	2,250
Importation of foreign birds and mammals.....	1,500	1,500	.....
Inspection and quarantine of quail.....	750	750	.....
Publication of information concerning game laws.....	1,800	1,800	.....
	147,000	254,500	107,500
General administration.....	10,760	15,000	4,240
Total.....	686,200	922,035	235,835

¹ Includes \$3,400 transferred to statutory rolls.

² Includes \$4,500 transferred to statutory rolls.

COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Saturday, December 20, 1919.

DIVISION OF PUBLICATIONS.

(Mr. McLaughlin of Michigan presiding.)

Mr. HARRISON. We will next present the estimates of the Division of Publications. Mr. Reid, chief of the division, is here. The estimates appear on page 192.

STATEMENT OF MR. EDWY B. REID, CHIEF OF THE DIVISION OF PUBLICATIONS, DEPARTMENT OF AGRICULTURE.

Mr. REID. Mr. Chairman, I wish to pass these photostat copies of a chart showing the organization of the Division of Publications, so that you can see very plainly what we are recommending.

Mr. McLAUGHLIN of Michigan. Have you a statement you wish to present?

Mr. REID. Yes, sir. These estimates provide for the consolidation with the Division of Publications of the Office of Information, Office of Exhibits, and motion-picture activities, involving about 40 people.

The estimates do not contemplate any radical changes in the present organization or in the methods of carrying on the work as it is now administered. As you may recall, at the beginning of the war Mr. Clarence Ousley was called here from Texas by the Secretary to act as Assistant Secretary in charge of all publication and informational work of the department. He also had charge of the motion pictures and exhibits. When Mr. Ousley left, the Secretary put this work in the hands of the Chief of the Division of Publications, who had charge of much of it under the Assistant Secretary while he was here. Thus we are not putting before you a program which has not been tried but are submitting estimates which involve merely the making of statutory changes which naturally would follow the changes which have been made administratively.

I want to call your attention to the fact that you are now dealing not with one bureau, one division, or one office, but with a vital factor which affects the Department of Agriculture as a whole. You are going to appropriate millions of dollars for this department for the purpose of investigational and demonstration work, as well as regulatory activities. To provide this money for that work and not to take care of the machinery for getting the results to the people, of course, would be merely wasting the large appropriation.

As business men you know you have to spend a certain percentage of your income for advertising your products. With the Department of Agriculture the necessity for advertising its products is even greater than in business, in that the investigations uncover valuable information which has been acquired at a heavy expenditure of time and money and which must be given not to a few individuals but made accessible to all of the hundred million people who will use it. I have no doubt you will continue to appropriate a sufficient amount so that the department's light will not be "hid under a bushel" but will be seen from the farthest corner of the Nation.

The part which the Office of Information has played and is playing in the getting of the department's scientific discoveries to the public is one of the most important, in that it has an immediate contact with the daily, weekly, and agricultural press and magazines, sending out timely, instructive, informational articles which are given a vast circulation through these mediums.

The preparation in the Division of Publications of the formal publications or bulletins is an indispensable function which makes available to the people in simple form the latest results regarding the multiplicity of activities in which the department is engaged. It also undertakes the vast work of distributing these publications, many of which are sent out at the request of Members of Congress. During the last fiscal year there were distributed through the Division of Publications more than 62,000,000 copies of bulletins and other publications. Ninety new Farmers' Bulletins were issued, besides many other bulletins and circulars of a popular nature. New publications of all classes numbered 840, and reprints were 401, making a total of 1,241 publications issued during the year. Job printing and binding received from the Government Printing Office amounted to more than 44,500,000 pieces, while the aggregate of printing and binding was more than 100,000,000 pieces. Some idea of the size of the task involved in the distribution may be gained from the fact that our incoming mail requesting publications alone now amounts to about 2,000 letters daily.

The preparation of the manuscripts for the printer involves careful, painstaking work, in which much improvement has been made in the recent past. The text of the circulars and Farmers' Bulletins is made as simple as possible and it is illuminated with the best photographs, charts, and other illustrations we can secure. The cover pages have been made more attractive, so the recipient of the publication will be interested in reading what the bulletin contains.

The motion-picture activities speak for themselves. There probably is no need of presenting statements to you regarding the need for this sort of visualization of agricultural information. If the motion pictures did no more than to draw crowds for the speakers who generally show the films they would be worth many times what the department has put into them to date.

The Office of Exhibits, of course, seeks, through another kind of visualization, to educate the public regarding the various improved processes of production and marketing of agricultural products and the latest discoveries concerning domestic science. Since June 30, 1919, the department has made exhibits at 57 fairs and expositions.

The total attendance at these shows was about 8,500,000 people and the total amount of floor space occupied exceeded 214,000 square feet. In order to show at this large number of fairs it was necessary to prepare five distinct sets of exhibits which were sent out on five circuits. In so far as it was practicable the exhibits were prepared with a view to be instructive in the particular regions in which they were shown and also to illustrate the work of the department. Several special exhibitions were staged, such as at the National Dairy Show, where there was an attendance of 120,000 people, and at the International Live Stock Exposition, the attendance of which was estimated to be 250,000. With the funds available the department will be able to make exhibitions at a number of other fairs before the close of the fiscal year, requests for which have been received.

Possibly you can visualize from this organization chart just what we are asking in the estimates. This parallelogram represents the additional positions for which we are asking this year. There are 11 of them. This heavy white line shows the way it is proposed to link the organization together, the offices of information, exhibits, and motion-picture activities becoming a part of the general publication organization. This is a logical organization, a natural coordination of several related units in the department—activities which have grown up and have been tried out for a series of years, but which have been conducted as separate units.

Possibly it is not altogether evident why we want to draw these together. This has to do mainly with the work of getting information to the public, through publications, motion pictures, material sent out to the press and to magazines, and exhibits. All of it is more or less of the same character and should be guided from the same source; that is, we want these sections articulated so that, if a thing comes up which the department wishes to stress (for instance, we are making a drive now on better sires), we key this whole organization into that drive. Under this organization each section here knows what the drive is, knows all about it, and the activity is all headed to one focus.

MR. McLAUGHLIN of Michigan. As to that particular line of work, you get requests from some of the other bureaus, do you not; you get papers prepared by the other bureaus on the subject of better sires, and it is up to your office to provide for their printing and distribution?

MR. REID. Yes. Not only that, but suppose we get a paper prepared in the Bureau of Animal Industry on better sires. If it is a worthy pamphlet, if it is worth distributing to the farmers as a bulletin or as a circular—

MR. McLAUGHLIN of Michigan. Who determines that?

MR. REID. We do in the Division of Publications.

MR. McLAUGHLIN of Michigan. You determine in what form it shall go out?

MR. REID. Yes, sir; that is our activity.

MR. McLAUGHLIN of Michigan. Who determines the number that shall be issued?

MR. REID. We do, largely. It is a publication activity. We start in, we will say, with a circular, and from that circular we write news items which go out to the press in various forms.

Mr. McLAUGHLIN of Michigan. As to that particular line of work; that will be an example?

Mr. REID. Yes, sir.

Mr. McLAUGHLIN of Michigan. You get some kind of writing from the Bureau of Animal Industry?

Mr. REID. Yes, sir.

Mr. McLAUGHLIN of Michigan. Then you determine whether or not it shall be published and in what form it shall be published?

Mr. REID. Yes, sir.

Mr. McLAUGHLIN of Michigan. And how many copies of the publications shall be printed and distributed?

Mr. REID. Of course it is not an arbitrary decision on our part as to whether it shall be published. We take this up with Dr. Mohler, Chief of the Bureau of Animal Industry, if we see any reason why this thing should not be published; but if it comes over and should be published, we go ahead and get it out.

Mr. McLAUGHLIN of Michigan. Then the question of whether or not it shall be published is alone in your hands and Dr. Mohler's?

Mr. REID. Yes, sir. Of course, if it involves some matter of policy, it goes up to the Secretary; but in the ordinary course of events that is the way it works.

Mr. VOIGT. If the bulletin were on some other subject, you would not go to Dr. Mohler?

Mr. REID. No; we would go to Dr. Taylor, or Mr. Nelson, or Mr. Estabrook, or whoever is in charge of that particular line of work. Of course this is a service organization for the Department of Agriculture; it is hardly an entity within itself, except that it works with the whole department. Whenever anything is dug out by the department we take hold of it and put it in language so the farmer understands it and so the ordinary layman can get hold of it. For instance, this treatise that comes over from one of the research bureaus of the department might be Greek to the ordinary farmer. We have to put specially trained writers on that and get it up in a news form, and then we put another man on it—an editor—to get it up in proper bulletin form.

Then, for instance, if it is a better sire proposition, we may put it on in motion pictures, and then in exhibit form. For example, at the National Fat Stock Show, we had two big posters prepared a little larger than an ordinary size door, showing the poor, scrubby cattle going downhill and the better sires going uphill. It is one of the best posters we ever issued. That shows how we key into the exhibits, and we might use it in some other way. This one [indicating] shows how we are trying to articulate all these activities in connection with our publication and informational work.

Mr. TINCHER. Who decided the matter of publishing how to make substitutes for sugar out of cider? The bulletin you recently got out over there about making substitutes for sugar out of cider, who decided about that?

Mr. REID. I do not recall any such bulletin, but the working idea probably originated in the Bureau of Chemistry and was upon first by a board of chemists in the Bureau of Chemistry (it was a formal publication) as to whether it was the right thing to get out, whether it was the right form, and—

Mr. TINCER. Who simplified it so that it would be plain to the farmers?

Mr. REID. I do not remember the particular publication, but it would go through the regular editorial channels.

Mr. McLAUGHLIN of Michigan. Usually in taking up a division like this we consider the statutory roll first and the changes and increases which you wish to propose, and perhaps you had better follow that course. Then as to these particular matters, they will come up as we reach the items to which they relate.

There is a change of title, first, is there not, on page 192?

Mr. HARRISON. Item No. 2 is a new place.

Mr. REID. Item No. 2, "One executive assistant," is a new place.

Mr. McLAUGHLIN of Michigan. Has the one who fills that place been employed before in the department?

Mr. REID. The man who is doing that sort of work now has been employed for some time in the department. We do not know, however, whether that man will be the person to fill this particular position if we get it, or whether we will have to bring somebody in from the outside.

As indicated in the explanatory data under item 2, on page 192 of the Book of Estimates, with the enlarged responsibilities of the chief of the division incident to the consolidation of all the publication and information work under one head, the services of an assistant will be necessary in order to relieve the chief of some of the administrative details. It is proposed to have this employee also exercise general supervision over the business operation of the division. The salary recommended for this additional employee is based on the salaries paid administrative and executive assistants who perform similar duties in other bureaus of the department. Practically each bureau of the department now has such an officer, and the salaries range from \$2,250 to \$3,000. The need for such an assistant in the publication work is acute, owing to the fact that the chief of this division has no assistant who can share the administrative duties. As explained under item 4, the employee formerly designated assistant chief is engaged entirely on work of an editorial nature. He handles the printing business of the division, and is an expert in such matters, but is not familiar with the general administration of the work and has no contact with the administration of the offices of exhibits, information, and motion-picture activities.

Mr. McLAUGHLIN of Michigan. What has been the work of the one you have in mind?

Mr. REID. He has been an assistant in the Bureau of Markets, where he has been thoroughly trained in business administration and the various laws and regulations of the department.

Mr. McLAUGHLIN of Michigan. What was his salary where he was employed before?

Mr. REID. I think it was about \$1,800. I am not conversant with his exact salary. As you can see, this organization carries a lot of work with it.

Mr. RUBEY. When we give you a new place, such as an executive assistant, who decides on the man who shall go into that position?

Mr. REID. Of course, we would have to abide by the civil-service regulations in that case and appoint according to them.

Mr. RUBEY. For instance, here are two or three men who have the civil-service qualifications; then some one would determine as between them?

Mr. REID. Yes; it would be put up to the chief of the bureau who would recommend the appointment to the Secretary.

Mr. McLAUGHLIN of Michigan. Was the man you have in mind for this executive assistant position on the statutory roll or the lump-sum roll in the Bureau of Markets?

Mr. REID. Can you answer that question, Mr. Harrison?

Mr. HARRISON. As I understand the situation, this place was inserted in the estimates with no particular person in view to fill it. With the growth of the activities of the Division of Publications and the constant increase in the work it was decided that it was necessary to have an assistant to the chief of the Division of Publications, especially in view of the fact that the man who formerly held and performed the duties of assistant chief of the Division of Publications is no longer performing those functions. He is now engaged in handling some of the printing business of the department.

Mr. RUBEY. Who is that?

Mr. HARRISON. I refer to Mr. Stallings. You perhaps know him, Gov. Rubey. We suggest in these estimates that his title be changed to that of assistant editor in order to conform to the duties he is actually performing.

Mr. RUBEY. The reason I asked the question was that I thought he might have left the department.

Mr. HARRISON. No; he is still there.

Mr. RUBEY. He is still there, but doing editorial work?

Mr. HARRISON. Yes. I understand, also, as a temporary measure, that Mr. Reid is using the services of the chief clerk of the division to a certain extent in the administrative work, taking him away from his duties as chief clerk. The man who occupies the position of chief clerk and who receives a statutory salary of \$2,000 was formerly in the Bureau of Markets, and when the former chief clerk of the Division of Publications died he was transferred to that place. That occurred some time during the summer. The man in the Bureau of Markets was receiving \$1,800 a year then. He was on the statutory roll of that bureau when he was transferred to the Division of Publications.

Mr. McLAUGHLIN of Michigan. He has been transferred, then?

Mr. HARRISON. Yes. He is now in the Division of Publications, actually performing the duties of chief clerk of the division, and, in addition to that, is handling some of the administrative work under the immediate direction of the Chief of the Division of Publications.

Mr. McLAUGHLIN of Michigan. When he was in the Bureau of Markets he was getting \$1,800?

Mr. HARRISON. Yes, sir.

Mr. McLAUGHLIN of Michigan. And was transferred to this division at what salary?

Mr. HARRISON. At \$2,000; to the statutory place of chief clerk.

Mr. McLAUGHLIN of Michigan. When was it that he was transferred?

Mr. REID. In May, 1919. We could give no other salary than \$2,000. The chief clerk died, and it was a statutory place.

Mr. HARRISON. That is item 12, on page 192.

Mr. McLAUGHLIN of Michigan. The next change is in item No. 4—one assistant chief of division, \$2,500, changed to one assistant editor, \$2,500.

Mr. REID. That is just a change of title. As was just explained, this is the man who is now carried as assistant chief of the division, but he is now doing editorial work exclusively.

Mr. McLAUGHLIN of Michigan. When a man is transferred from one position to another, is it necessary for him to take a civil-service examination?

Mr. REID. Not always. If his qualifications are such that he can take the new position, it is not necessary for him to pass an examination.

Mr. McLAUGHLIN of Michigan. If a man gets into the department in any capacity, having passed the civil-service examination, and you think his ability justifies it, he can be transferred to any other position with the department?

Mr. HARRISON. That is not strictly true, Mr. McLaughlin. For instance, we would not transfer a clerk to a position of veterinary inspector, nor could we transfer a clerk to a position of editor. We can, however, transfer a person in the department from one position to another so long as the two positions are in comparable grades; that is, grades which call for essentially the same sort of civil-service examination in each case. But where an examination under which the man originally entered the service is totally different from the examination scheduled for the position to which we wish to transfer him it can not be done.

Mr. McLAUGHLIN of Michigan. If the work, then, is at all similar and a man enters the department as the result of a civil-service examination you can put him in any other place?

Mr. HARRISON. Yes. For instance, a clerk may be promoted through the various grades to the position of executive assistant or administrative assistant without any other examination, as both positions call for work of essentially the same character, though, of course, in the case of the executive assistant and administrative assistant it is of a higher grade.

Mr. RUBEY. You simply drop item 4, and that assistant editor comes in under item 5?

Mr. REID. Yes, sir.

Mr. HARRISON. That is correct, Gov. Rubey.

Mr. RUBEY. And the same man who was assistant chief at \$2,500 will be an assistant editor at \$2,500?

Mr. HARRISON. Yes, sir. On the 1st of next July the chief of the division will make a recommendation that his title be changed from assistant chief and that he be placed in the position of assistant editor. That completes the action.

Mr. RUBEY. One difficulty about these changes of title is that they always give the committee a good deal of trouble on the floor of the House. It would be a good idea for you to get these things once fixed so that you would not have to make these changes so frequently.

Mr. HARRISON. In some instances we have suggested that more general titles be given, so as to afford greater flexibility in the handling of the force and make unnecessary these changes from year to year. In the case of the carriage driver, to which reference was

made to-day, we asked to have the title changed to laborer or messenger, as it is a more flexible arrangement, and we can better adjust our force to meet the needs of the work.

Mr. McLAUGHLIN of Michigan. What other changes in this roll are you asking?

Mr. REID. I would like to call your attention to item 8, one assistant in charge of motion-picture activities, transferred from the lump sum for general administration, Forest Service, \$2,520.

Mr. McLAUGHLIN of Michigan. Has he already been transferred to that work?

Mr. REID. He has administratively been doing this work at least two years.

Mr. McLAUGHLIN of Michigan. He was employed in the Forest Service?

Mr. REID. Yes, sir. He was doing educational and motion-picture work in the Forest Service for a number of years. Recently he has been directing the motion-picture work for the department, as a whole, and we now want to bring the position under the Division of Publications by statute.

Mr. McLAUGHLIN of Michigan. What was his salary in the Forest Service?

Mr. REID. \$2,520 per annum. We are asking for the statutory place just the same as it is carried now by the Forest Service. There will be no increase.

Mr. RUBEY. The Forest Service appropriation will we reduced that much?

Mr. REID. Yes, sir.

Mr. HARRISON. It has been reduced.

Mr. RUBEY. It has been reduced in the Forest Service and put in here?

Mr. HARRISON. It might interest the committee to know that, since these estimates were prepared, the man you are now discussing has resigned from the service, and I understand that he will receive a salary of \$6,500 a year. It will be exceedingly difficult to get a man to handle our motion-picture work for \$2,520. As a matter of fact, we think it will be absolutely impossible. We hope the committee will increase the salary to at least \$3,000, so as to put it on a comparable basis with the assistants in charge of other units of the Division of Publications. The assistants in charge of exhibits and information get \$3,000 each, and we would like to have the same salary for this position. It will not go to the man who has hitherto occupied the place, because he has resigned from the service. It will not go, so far as we can now determine, to anyone in the Department of Agriculture, because we know of no employee who is particularly qualified for that work. We expect that we will have a great deal of difficulty in getting anyone, even for \$3,000. The place of chief editor, which you provided in the current appropriation act, remained vacant for more than five months, and was filled only a few weeks ago.

Mr. McLAUGHLIN of Michigan. Can not you put him on the lump-fund roll and give him \$3,000?

Mr. HARRISON. In the Division of Publications there is only one very small lump-sum roll out of which salaries could be paid, and

the whole appropriation is only \$2,500; so that the plan you suggest would hardly be possible.

Mr. McLAUGHLIN of Michigan. You would not have to keep him there very long. Transfer him to the lump-sum roll at the original salary, and put him back on the statutory roll at an increased salary.

Mr. HARRISON. It is pretty hard to get \$3,000 out of \$2,500, nevertheless.

Mr. TINCHER. Who is this man going to work for at \$6,500?

Mr. HARRISON. The Universal Film Co., I understand. I may say that the motion-picture companies pay some of their camera men as much as \$100 a week.

Mr. REID. You gentlemen will realize the logic of that request. The motion-picture industry, of course, is paying salaries away beyond anything we can touch, but we do want to get an intelligent man who will go in there and build up this work on a plane which will be creditable to the Department of Agriculture.

Mr. TINCHER. Perhaps the competition is getting so strong in the moving-picture business that we will have to go out of it.

Mr. REID. Mr. Ellis has succeeded in producing some very fine films. We have, I think, 57 complete scenarios now, besides a good deal of undeveloped film, which will run that up a good bit higher.

Mr. RUBEY. Does it not require a pretty good man to do this kind of work; does he not have to know what he is doing, be familiar with the subjects of the pictures he presents, and all that sort of thing?

Mr. REID. He does; he must know the work of the Department generally and must see the film through, from the preparation of the scenario to the distribution, for exhibition of the completed film.

Mr. RUBEY. Does he do any lecturing in connection with his pictures?

Mr. REID. No; that is done by the scientists and extension workers. All he does is to plan and make the films. When a scientist or extension man goes out, he uses the film largely to draw a crowd and to give the main idea; then he supplements the picture with a lecture giving the details, and finally, ideally, he should have bulletins there to give the printed directions, so a man, when he goes away, can do something. This is getting the results of the department work back to the people.

Mr. HARRISON. This employee, Gov. Rubey, is the man who produces the pictures. He must have vision, he must be able to visualize a picture, and he must be able to determine the best subjects to picture. He must know the motion-picture business in all its aspects.

Mr. McLAUGHLIN of Michigan. There are a number of agencies employed in conducting the work of the department, and no one member of this committee can state what the policy of the committee is going to be about those agencies, but I will say to you that some members are going to try to keep these appropriations down. When, however, the suggested increase in each of the items comes before us with the same force behind it as to its necessity, it is a pretty hard proposition for the committee to determine the relative importance of these matters.

When an increase is suggested in one item, and it is urged upon us as absolutely necessary, and a suggested increase in the next one

is suggested with the same force, it puts us in a pretty hard position to decide relative values when we come to cut, as there is bound to be some cutting in these estimates, because altogether there is a considerable increase asked for. I do not believe the House will stand for this large increase, and some of us think it ought not to stand for it, because the Government will not have the money for it.

Mr. REID. Mr. Chairman, in connection with the Division of Publications appropriations, there is no increase. There is what you might call an apparent increase, but everything is transferred. If you will turn to page 198 you will find that the \$54,010 mentioned there is for salaries already paid to employees in the department, and corresponding reductions have been made in other places in the bill, so that there really is no increase. There are no increases in salaries. There are new positions amounting to about \$19,000, but those new positions are absolutely necessary for the proper conduct of this work, and to partially offset that increase we are dropping places to the aggregate amount of about \$4,000.

As a matter of fact, the estimates for 1921, which we are discussing, represent an actual reduction of \$33,170 below the amounts appropriated for the same work—publications, exhibits, motion pictures, etc.—for the current fiscal year. This is shown as follows:

Increases recommended.

Additional positions (net) (see p. 198)-----	\$15, 050
Labor-saving machinery and supplies-----	1, 000
Furniture and fixtures-----	280
Telephone and telegraph, freight, and express-----	150
Miscellaneous expense-----	350
Net actual increase-----	16, 830
Reduction in exhibit appropriation from \$100,000 to \$50,000-----	50, 000
Less increase listed above-----	16, 830
Actual reduction in estimates for 1921 below amount provided for publications, information, and exhibits work for current fiscal year-----	33, 170

Mr. McLAUGHLIN of Michigan. An appropriation is made for a certain kind of work; the money is appropriated and men are employed; that work is done and completed. There is a feeling that some of those men might be separated from the service, but, being in the classified service, they believe, and others believe with them, that they are entitled to a permanent job, and you find something for them to do—transfer them to some other place to do some work, some of which is necessary and some of which perhaps would be just as well left undone. You must find a place for a man who has been engaged in some line of work.

Mr. REID. That is not the situation in the Division of Publications. Our work does not consist of projects which seek to accomplish a specific object and then are over with. Our work is necessary as long as the Department of Agriculture has information to get before the people of the country.

Mr. McLAUGHLIN of Michigan. I know many of these men are transferred from some other roll where their work is finished.

Mr. REID. Take these writers that we have been discussing, for instance, these men who have come in from the outside: Take the case

of Mr. Dacy, who was employed for some time in the Bureau of Markets in the live-stock work, and doing considerable writing. The bureaus engaged in live-stock work wished to get out news stories, magazine articles, etc., regarding their various activities. We already had an organization in the Office of Information. The logical place for that man was in the Office of Information where, if he had any spare time, he could turn to other work than the live-stock writing but primarily cover the Bureaus of Animal Industry and Markets. It is only a question of whether he stays in the bureau or whether he comes over to the Office of Information. You can see that where we have somebody guiding those writers their time will be better occupied than in a bureau where they would be writing only a part of the time and doing some other kind of work the remainder of the time.

Mr. McLAUGHLIN of Michigan. What I had in mind was that a lot of new work is recommended by the department which commends itself to the judgment of the committee, and the work is undertaken. When that work is finished, some of us think that that ought to be the end of it and that the Government ought to do as private interests would do—let the men go and stop the expense.

Mr. REID. That is something that does not apply to the Division of Publications, as there is always need to let the people know of the advancement being made in agriculture.

Mr. McLAUGHLIN of Michigan. Other places are found for those men in some line of work that often, we feel, is not necessary.

Mr. ANDERSON. As I understand it, this proposition is to consolidate the Office of Information, the Office of Exhibits, or whatever you call it, with the Division of Publications; am I correct about that?

Mr. REID. Yes, sir.

Mr. ANDERSON. It would be natural to suppose that one purpose of such a consolidation would be to reduce the force necessary to do the same amount of work. It would be reasonable to suppose, when you get all these units under one head, that you would have less overhead connected with it, whereas apparently the result of the consolidation is an increase in the number of employees required. Is that due to any added work proposed?

Mr. REID. No, sir; that is due to the desire to increase the efficiency of the Division of Publications, which is the old unit. Possibly you know that for years the salaries in that division have not been what they should be, that we have had to put up with some help which was not young and mentally alert, but otherwise, and these positions have been statutory.

For instance, during the last year we have had a turnover of 33 per cent in the \$900 positions and 127 per cent in the \$840 positions. With a lot of positions such as that, you can not expect the work to be efficient. What we are asking for in the Division of Publications is a certain number of people who will help us to put this whole work on a more businesslike basis. The organization is big enough to be put on a businesslike basis so that we can function more properly for the public. It is a service bureau primarily; it is a division which makes contacts with the public, and if it does not function properly the whole Department of Agriculture is being wronged.

Mr. ANDERSON. If you need more salaries, that is one proposition; if you need better men, that is another proposition; if you need more men, that is still another proposition. Now, which proposition is it?

Mr. REID. We need more men and we need better men. We are asking for top positions here. We are not asking for the lower positions of \$840 and \$900. Frankly, I do not see how the people live on the \$840 and \$900 salaries, and you can see how difficult it is from the turnover which we have had in the last year. For instance, we need this key man, one executive assistant, at \$2,500, who will help to knit this organization together, who will take some of the work off of the chief of the Division of Publications.

Possibly you gentlemen do not know what a great amount of mail and how many administrative matters come over my desk. I want to get free from that to a certain extent so that I can attend to some of these larger matters in connection with the real informational work of the department. That is why we want this position. The same is true of the other 10 additional positions requested. The explanations in the Book of Estimates show how we propose to use these people to strengthen the organization at vital points so as to insure its functioning in a manner creditable to the Government.

Mr. ANDERSON. What kind of informational work?

Mr. REID. The informational work of the Department of Agriculture; giving the results of the department's investigations to the public in proper form.

Mr. TINCHER. I do not know whether I understand you or not, or whether I understand these estimates. On page 202 it says that the amount appropriated for the fiscal year ending June 30, 1920, was \$240,140, and the amount to be appropriated this year is \$362,480. As I understand you, there is not to be any increase in this appropriation.

Mr. REID. I probably did not make that clear a few minutes ago when I referred to the figures on page 198. The discrepancy is represented by the incorporation in this year's estimates of these positions in the Office of Information, Office of Exhibits, and motion-picture activities, and the transfer to the Division of Publications of the appropriation for agricultural exhibits; whereas the figure for last year covers only the old Division of Publications—a single unit. The estimates now provided for all these units under one heading, the Division of Publications. There is really no increase, a deduction having been made elsewhere in the bill in each instance. Do I make myself clear?

Mr. TINCHER. Yes; I understand your statement. I do not know just where the reductions are made, though. I do not know of any other place in the bill where you have made a deduction that you have not put in something else to take the place of the amount reduced.

Mr. REID. I can take them up page by page, if you wish. It is only a matter of going through it.

Mr. TINCHER. I do not care to take your time.

Mr. REID. A reduction has been made in each instance.

Mr. JONES. In this increased figure on page 202 there is a difference of twenty-odd thousand dollars brought about by your proposed consolidation?

Mr. REID. Exactly.

Mr. HUTCHINSON. Can you tell us where that is taken from?

Mr. REID. On page 198 you will see all of these appropriations and where they are from.

Mr. HARRISON. The total amount includes \$50,000 for exhibit work, which this year is dropped from the miscellaneous section of the bill and included under the Division of Publications. Furthermore, whenever a transfer from the lump fund to the statutory roll is made the lump fund is correspondingly reduced.

Mr. McLAUGHLIN of Michigan. In the item on page 299, for printing, binding, and so on, you will find an increase of \$125,000 instead of anything being dropped.

Mr. HARRISON. That is a different matter.

Mr. McLAUGHLIN of Michigan. That is only for the work of doing printing?

Mr. HARRISON. That is for actual printing, and the appropriation is carried in the sundry civil bill annually.

Mr. McLAUGHLIN of Michigan. I realize that there is no printing done in the Division of Publications and that the work Mr. Reid is doing is in preparation for the printer.

Mr. HARRISON. As a matter of fact, considering the exhibit work and the fact that the transfers represent only an apparent increase, there is an actual reduction in the total amount for the fiscal year 1921, as suggested in these estimates, of approximately \$33,000.

Mr. TINCHER. It may be that I have got the system sized up incorrectly, but I got it into my head that, while you say there is an actual reduction in one bureau because you have taken some of the work of that bureau and added it to another bureau, which accounts for the increase in the figures of the latter bureau, there is really no reduction in the total funds available for that work. Maybe I am wrong about it, but I think, if you will turn to the other sections of the bill, such as miscellaneous, etc., you will find that they have no actual reduction in their estimates but that the figures will be larger than they were last year, because they have taken on the work of some other bureau or added something to it, and it looks to me as though that is the way the whole thing is all the way through. There are no reductions in the sum total.

Mr. REID. I am not sufficiently familiar with all the estimates to say whether the other bureaus have taken on other activities.

Mr. HUTCHINSON. Where do they get their increase? Do they take it from another bureau and put it in here?

Mr. HARRISON. We have suggested certain increases, which are for the committee to consider. We have given the reasons for these increases.

Mr. McLAUGHLIN of Michigan. These transfers are all of the same nature?

Mr. HARRISON. They are all of the same nature, and are merely incidental to the consolidation of the publication, informational, and exhibit work.

Mr. McLAUGHLIN of Michigan. The next increase, then, is in item 23?

Mr. RUBEY. Before we get to No. 23 let me ask about item 9. I notice in paragraph 9 one superintendent of distribution, \$2,500, changed to assistant in charge of distribution, \$2,500.

Mr. REID. That is merely a change in language.

Mr. RUBEY. That is similar to item 4, above?

Mr. REID. Yes.

Mr. RUBEY. There is no change in the position; you are merely changing the man's title?

Mr. REID. Yes, sir.

Mr. RUBEY. And that is repeated in item 10; that is, the same man?

Mr. REID. The same man and the same position.

Mr. RUBEY. The same man will be continued in that position?

Mr. REID. Yes, sir; under the changed title.

Mr. HARRISON. Items 9 and 10 go together. One place is dropped and another is added. The purpose of the change in title is to make the designation of the position comparable with the designations of the other supervisory assistants, such as the assistant in charge of distribution, the assistant in charge of information, and the assistant in charge of exhibits.

Mr. REID. Item 23 provides for two new indexers and compilers, at \$1,800 each. These people are badly needed for indexing the publications of the department, etc. They are particularly needed in making comprehensive indexes of information contained in department publications. They will assist in preparing indexes for volumes of department bulletins, which work is in arrears, and in compiling cumulative indexes for the Yearbook of the department in five-year series.

These additional employees are needed to place in effective operation an improved system of handling the numerous requests received by the Division of Publications. As I said a few minutes ago, we are receiving about 2,000 letters a day. Our publications are almost legion, dating back from the beginning of the Department of Agriculture, and it requires a good index, one that is workable and one that we can turn to immediately to answer intelligently this large volume of correspondence.

Mr. McLAUGHLIN of Michigan. Are you doing that work now, or work that you are going to take up the 1st of July?

Mr. REID. It is an improvement on the work that we are now doing in indexing. We are behind in indexing, and we have not a sufficient number of good people. We are not satisfied with the service we are able to give the public with our present system of handling the mail, and we are asking for these \$1,800 positions in order to place the work on a satisfactory basis. We are going to have difficulty in filling those positions at \$1,800, that is, with men who are good at indexing work, but we are willing to try it, and if we can get those people we are going to bring and keep these indexes up to date and use them more and more effectively in answering correspondence.

Mr. McLAUGHLIN of Michigan. It is not entirely new work, is it; work that you are going to take up the 1st of July?

Mr. REID. It is not entirely new, but we contemplate a sort of reorganization and making it more of a key unit in connection with correspondence. Heretofore it has been an index which we have prepared for the use of the department, the experiment stations, and anybody who wishes to ask for information regarding our publications.

Mr. McLAUGHLIN of Michigan. Are those who are doing the work of indexing and compiling employed under some other title?

Mr. REID. The indexing is now done by very much lower-salaried people, who are really not competent to do this kind of work.

Mr. PURNELL. Have you any field agents in your department?

Mr. REID. No, sir; they are employed for the most part in the States Relations Service.

Mr. McLAUGHLIN of Michigan. Are the same people who are now employed and doing the indexing to be continued after next July?

Mr. REID. Yes, sir.

Mr. McLAUGHLIN of Michigan. And they are employees who are now on the roll at lower salaries?

Mr. REID. Yes, sir.

Mr. McLAUGHLIN of Michigan. Then you are adding the new title "indexers and compilers" for the purpose of enabling you to increase the salaries of those who are now in the division doing the work?

Mr. REID. No, sir; these positions are not for promotions. We have got to have new people for this work. The people at the lower salaries, I might say, at \$1,200 and \$1,000—

Mr. McLAUGHLIN of Michigan. They are doing the work now?

Mr. REID. They are not doing the work now. That is just the point. We want to get two new people in there who can do the work and do it properly, and we will have to pay \$1,800 in order to get the right kind.

Mr. ANDERSON. What are you going to do with the two that you have?

Mr. REID. They can be occupied assisting these other people—doing a lower-grade work. You can not turn over this indexing work to a stenographer who has no qualifications of that kind or no experience. The work requires a logical mind and special training. For this work a broad knowledge of agriculture is desirable, too.

Mr. McLAUGHLIN of Michigan. Those who are doing the work now, by the time July 1 comes, will likely be as competent as the new ones you could employ, would they not?

Mr. REID. Unfortunately, they would not. They are very old people. They have been there for years. They can do so much and no more. Their work is largely confined to routine—for instance, typing the index cards, sorting, etc.

Mr. HARRISON. Mr. McLaughlin, I understand there are only two people in that section who are actually doing indexing work. They have clerks, of course, who do routine work in connection with indexing, but the men who actually index the publications and who are responsible for the work are indexers and are so called in the bill. One of the items appears on page 192, item No. 11; the second is on page 193, item 24. These employees are real indexers. The sole purpose here is to get additional assistants who are capable of working out an index, taking a publication and framing an index in such a manner that it will be intelligible and so that you can find what you are looking for.

Mr. ANDERSON. Mr. Harrison, your statement does not quite gibe with what Mr. Reid has said. He is talking about two people at \$1,800, and you are talking about one man at \$2,000 and another at \$1,400.

Mr. HARRISON. I have just stated my understanding of the situation, because it seemed to me that Mr. Reid's statement gave an erroneous impression of the matter. I think he will verify what I have just said.

Mr. REID. I was talking about item 23, two indexers and compilers at \$1,800.

Mr. HARRISON. Those are new positions that we are asking for. We intend to use them, not for promotions, but for the employment of two new people at \$1,800 each, if they can be secured at that salary. There is no thought of making any promotions.

Mr. RUBEY. You will keep employed the indexer under No. 11 at \$2,000 and the one under item 24 at \$1,400, and you will need these two new men to assist them in the work?

Mr. REID. Yes, sir.

Mr. HARRISON. Gov. Rubey, you know that we receive any number of letters of a general character, asking for all the information the department has on this subject or that subject; in fact, one letter may cover a dozen subjects. We have a central section where we keep an index of all our publications, and the indexers can turn to their records and indicate to the applicant all the material that the department has issued on the subject or subjects in which he is interested; in that way we handle the inquiry and see that the man gets everything for which he is asking. Work of this sort can not be satisfactorily done by \$840 or \$900 clerks.

Mr. McLAUGHLIN of Michigan. The next increase requested is in item 26.

Mr. REID. We are asking for a new place for an artist and designer at \$2,500. As indicated in the explanation in the Book of Estimates, considerable progress has been made in the past few years in placing the department publications, especially Farmers' Bulletins, special leaflets, posters, etc., before the people in more inviting form through the use of attractive covers, appropriately designed with regard to subject matter, well illustrated, and artistically lettered. The services of a well-qualified, experienced artist and designer are needed to handle personally the more difficult pieces of work which require creative ability, involving initiative of thought and a broad knowledge generally, including thorough training in applied art. A man with the requisite qualifications can not be secured for less than \$2,500.

Now you gentlemen handling these Farmers' Bulletins have seen them as they are issued. We will have to put the case up to you as to whether we have not improved the appearance of those bulletins and made them more useful within the last few years. The old Farmers' Bulletins were written by the scientists with very little editing, and some of them were almost impossible to read or follow. In fact, we get these impossible manuscripts now from men whose business is not to write but to engage in scientific activities and dig into one subject or another. We have tried to take these manuscripts and edit them so as to put them in the most readable form.

Let me say, in connection with the improvement in these bulletins, that whenever we make a display at a fair, whenever we get outside of Washington into the rural districts we come into competition with the various commercial agencies and their publications. They put real money into advertising their products and into making

their publications attractive. When our old-style Government documents were put alongside of the commercial exhibits, the commercial posters and publications, the people would not pay any attention to them.

You gentlemen sent out the old-style Farmers' Bulletins by the millions, but unless a person was particularly interested in the bulletin he received he never opened it. They made good material to start a fire. We are trying to get away from that in trying to make these bulletins so the person who receives them will get some benefit from the money which you have appropriated for the investigational work. In order to do that we want to dress them up a little more. We have made a start; that is what we feel it is, a start. We are asking for a man at \$2,500, but we are going to have some trouble getting a man at that salary, because in commercial concerns they pay from \$60 to \$120 a week for a good designer, a man who is capable of making covers such as we desire and of retouching with the air brush the photographs which are used in the Farmers' Bulletins. The men we have now are good, but with a capable artist to guide them and also to do the more technical and better work, we will be able to turn out Farmers' Bulletins which are much superior to those we are now issuing. Already we have printed some bulletins in colors as an experiment. We are sending one down to the Government Printing Office now. Color makes all the difference in the world; it makes them more attractive and valuable to the people receiving them. This man is absolutely essential to our going much further in the progress of illustrating our bulletins and making them more attractive.

Mr. RUBEY. I would like to verify what Mr. Reid says from my own experience. I have been here 8 or 10 years, and I know that the bulletins we used to send out when I first came here did not attract the attention that the bulletins we are sending out now do; and I think one of the greatest works that this office is doing is to get these bulletins out in the attractive form in which they are now gotten out. I think it is exceedingly important and valuable work.

Mr. HARRISON. Mr. Chairman, I would like to say that most of the work of designing covers up to date has been done by Mr. Reid himself, but with the pressure of work upon him, it is absolutely impossible for him to continue it. We need a man with considerable vision to plan and direct the work of the artists who do the cover drawing.

Mr. McLAUGHLIN of Michigan. What is the next change?

Mr. REID. The next one is item 30, I believe. We want an increase of two draftsmen or photographers at \$1,400 each. These are people who would prepare such material as the pictures used on the inside of bulletins. The photographs we get from the scientists are not such as can be used by the Government Printing Office and give us good results. Air-brush work or careful pen or brush work is required. Hence, in order to get good results from our illustrations we have to ask for two more draftsmen. The department is constantly using the section of illustrations more and more. We are several weeks behind in all phases of the work of the section of illustrations, and that is the situation throughout the year.

These draftsmen not only do work on bulletins but work on posters, which is a very important phase of our activities. There, for instance [exhibiting posters], is a poster showing the cattle rustlers of bygone days, compared with the cattle rustlers of to-day. This pictures the cattle-fever tick running off the cattle compared with the human rustlers of olden days. As a bit of advertising I want to explain to you the efficiency of this poster. Recently I was in Florida, and the Bureau of Animal Industry inspectors down there say the people think so much of that poster that they have it framed in their parlors. The man who drew this picture was only getting \$1,200. He has now left the department. I think he is getting \$1,800 or \$2,000 outside. In order to carry on that sort of work we must have two more draftsmen.

Here is another poster [indicating]: This we used during the war when we were making a drive for more boys and girls to join the sheep clubs. That was very effective. We used that all over the country where we tried to promote the production of more sheep and wool.

Mr. PURNELL. Were you able to estimate the benefit derived from that drive in the increased production of sheep?

Mr. REID. We have some figures on that and also on swine. They were very effective in increasing the production of pork in the country.

Here is a poster [exhibiting] on the drive for better storage of sweet potatoes. I was speaking to you awhile ago about the need for articulating all these activities. Here is an example in the drive for better storage of sweet potatoes. Two or three of the Southern States each produce about \$15,000,000 worth of sweet potatoes a year. The losses which are caused by the rot entering these potatoes when improperly stored is staggering. One of the activities that the department has entered into is trying to stop the loss through the proper erection of storage houses and the drying of these tubers before they are shipped to the north. This poster illustrates only one phase of the campaign through which we hope to stop this loss.

Here is another poster [exhibiting] illustrating our drive for improving hides. The take-off of hides by most farmers is destructive. The farmer does not know how to do it. He slashes and cuts the hide, and consequently there is a big reduction in value in the hide and the finished product.

Mr. McLAUGHLIN of Michigan. You have a man or men employed in making these pictures, and they have to be printed and circulated. Can you tell us the expense involved in all the steps and stages?

Mr. REID. That would be almost an impossibility. We could figure it out for any one poster or any one informational activity. We can give you the cost of printing for any one of these and the cost of distributing.

Mr. McLAUGHLIN of Michigan. This is something comparatively new?

Mr. REID. Within the last three or four years, yes.

Mr. McLAUGHLIN of Michigan. You have a certain number of new men employed on the work and a certain additional cost involved in preparing for printing and for circulating this new kind of work.

Can you not tell us how much increased expense is involved altogether?

Mr. REID. I never thought of it exactly in that way. It would be rather difficult to draw the line at where it started in the department and where it stopped.

Mr. McLAUGHLIN of Michigan. Then you have no idea as to whether this is worth the money that is called for or not?

Mr. REID. We have a very definite idea that we are getting excellent results from this sort of display work and that, as a general business proposition, it can not but help.

Mr. McLAUGHLIN of Michigan. I think your judgment is good, but can you not tell us, so that we can exercise our own judgment, if we wish, how much money is involved in this new kind of work?

Mr. REID. I can get you up a statement showing as closely as it is possible to estimate what it involves.

Mr. McLAUGHLIN of Michigan. Will you make up an estimate as close as you can as to the cost involved in this new line of work that you have undertaken?

Mr. REID. Yes, sir. I will insert that in the record.
(The statement referred to follows:)

STATEMENT CONCERNING POSTERS USED IN THE INFORMATION AND PUBLICATION
WORK OF THE DEPARTMENT OF AGRICULTURE.

The preparation of posters such as those exhibited at the hearing on December 20, 1919, in connection with the estimates of the Division of Publications for the fiscal year 1921 entails the following steps:

(a) Complete information covering the subject matter of the proposed poster is furnished the Office of Information by the scientific investigators of the staff of the bureau concerned. This may cover a number of pages.

(b) One of the staff of the Office of Information who is a specialist in such work then prepares a "dummy" which embodies the ideas of both the scientist and information worker, and which meets the viewpoint of the latter as to typography or lettering, general layout, etc.

(c) The rough layout is submitted to the section of illustrations for the necessary art work.

COST OF POSTER.

The expense involved under (a) and (b) above can not be determined definitely, as these steps in the preparation of a poster represent a part of the regular duties of the personnel so employed. For instance, the idea contained in a poster may represent the result of a number of months of research and study. Perhaps bulletins, scientific circulars, etc., also have been prepared on the same subject, going into detail. The idea of the poster may have taken an hour's planning or a day's planning, or it may have taken form much more quickly.

To gauge the expense of the physical preparation of the poster of course is an easier matter. In a typical poster the services of the artist would involve from 7 to 10 days' time, usually of an employee whose annual salary is \$1,200 or \$1,400, making an approximate cost of from \$30 to \$50. This, plus the printer's and lithographer's charge, would represent a fair estimate of the cost of the average type of poster issued by the department.

For example, the poster "Dip that tick in March," which was issued in February, 1919, involved an expenditure of \$400 for 10,000 copies. The expense of distribution was small, as the poster was shipped in bulk by the lithographer to field agents of the Bureau of Animal Industry, who in turn distributed copies where they would be helpful.

VALUE OF POSTERS.

The official in charge of cattle-tick eradication of the Bureau of Animal Industry states with reference to the value of posters in tick-eradication work:

"During 1919 the posters used were 'Dip that tick in March' and 'Cattle rustlers.' The former was used principally in the eastern territory and the latter in Texas, Oklahoma, and the western area where tick-eradication efforts are being made. Thus both posters were used and each was most effective in the area mentioned. They were displayed principally in country stores, blacksmith shops, railroad depots, post offices, and other places where they were protected from the weather. Bureau employees engaged in tick eradication work were instructed to put the posters up themselves, thus preventing wastage and likewise furnishing a topic for an impromptu talk on tick-eradication at the time the posters were displayed.

"The posters have been valuable principally for the following reasons: They were an effective means of reaching persons who do not read or can not read. Reaching a few of the leading people is not sufficient, since tick-eradication must be supported by the owner of a few cattle as well as by those having large herds.

"Even illiterate live-stock owners are influenced by the pictures shown in the posters to spell out the few words or have someone spell the posters to them. In many cases the interest aroused results in attending meetings or in obtaining information on tick-eradication that later develops into a favorable attitude toward the work.

"It is difficult to state in exact terms just what part posters have played in tick-eradication work, but the excellent results of 1919 efforts are attributed by employees in tick-eradication work to have been possible because the posters in large degree prepared the way for dipping and related field activities. Display of posters has also encouraged persons who formerly would not read bulletins on tick-eradication to write to the department for literature giving more details than the poster contained. Briefly, the two posters mentioned have been of great assistance and value in hastening eradication of cattle-fever ticks."

"Join a sheep club"; 50,000 copies of this poster, costing \$1,075, were issued October 31, 1918. Distribution was made through the department's extension forces engaged in club work. One of the extension specialists reports that through the interest aroused last year—to a large degree through the poster—the enrollment in the sheep clubs was increased from 1,263 in 1918 to 2,253 in 1919. When it is realized that each club member is required to secure four or more bred ewes, it will give some idea as to the increase of sheep as a result of this work.

To quote further from his report:

"I feel that the sheep club poster was quite an asset in fostering this particular piece of work, particularly as it was a very attractive poster, and one that would appeal to boys.

"Of course, I have mentioned only the influence that this has had on club members. No doubt, as this was placed in post offices and other public places, it likewise had influence on adults. I feel that this poster was well worth while, and I only regret that we could not get one of like nature for use this year."

These posters may be considered typical of all that have been issued by the department. The cost to the department of distributing posters is negligible. In most cases the posters are sent in bulk to county agents or to other field agents for distribution. Miscellaneous requests are handled by the regular mailing force of the Division of Publications without appreciable increase in the work.

The Department of Agriculture for many years has used placards or posters of a conservative type in connection with its projects. These have been made more attractive, more popular in style, and greater in number during the past few years. However, the expansion does not represent any new project or work, no new force of employees has been engaged for this class of work, and the posters have been prepared and distributed with the regular force. This has been accomplished by improved management of the resources at hand and by eliminating what have been considered to be less effective means of publicity.

(Thereupon, at 12.45 p. m., the committee took a recess until 2 o'clock p. m.)

AFTER RECESS.

The committee met at 2 o'clock p. m., Hon. Gilbert N. Haugen (chairman) presiding.

The CHAIRMAN. The committee will come to order. You may proceed, Mr. Reid.

DIVISION OF PUBLICATIONS—Continued.

STATEMENT OF MR. EDWY B. REID, CHIEF OF THE DIVISION OF PUBLICATIONS, DEPARTMENT OF AGRICULTURE—Continued.

Mr. ANDERSON. Before you go on with item 45 I want to talk to you about item 36, one laboratory aid at \$840, in lieu of one clerk, \$840. Is that a film man?

Mr. REID. No; he is not much of a film man. He is an embryo; he is just getting into the work, and helps around the laboratory.

Mr. ANDERSON. He works in the exhibit end of it; he is a sort of apprentice?

Mr. REID. Yes, sir; that is all.

The CHAIRMAN. I wish to call your attention to several of these items—items 45 and 46, five assistant clerks.

Mr. REID. We propose to drop several of these \$840 places. We can not afford to drop many of them, because we can not ask for a lot of new places. For instance, we are asking for 2 clerks at \$1,600 and 3 clerks at \$1,400. These are new places, but, in lieu of those places, we are expected to drop 5 places at \$840. That means that there will be a net increase of \$3,200 in the roll.

The CHAIRMAN. You jump from \$840 to what?

Mr. REID. We drop five \$840 places, and we are asking for two additional clerks at \$1,600 and three additional clerks at \$1,400.

The need for these additional employees is urgent, and a brief explanation of why we need them is found in the Book of Estimates under items 45 and 46. I hope the committee will give favorable consideration to the recommendation for these new places. None of them are for the purpose of promoting employees now in the division. Our sole purpose is to secure additional help of a higher grade than we have at present, to occupy relatively important assignments. Due to the extremely low salaries obtaining in the Division of Publications, the standard of the clerical personnel has not kept pace with the standard maintained in other branches of the service where it has been possible to pay the salary required under changing conditions for efficient clerks. This has handicapped the Division of Publications in many ways, and the situation necessarily reflects itself in the quality and quantity of work which we turn out. Other bureaus of the department have at least a fair proportion of positions in the higher grades on their statutory rolls—\$1,400, \$1,600, \$1,800 per annum, etc.—and these positions are used for the employment of the clerks who occupy the supervisory and more responsible clerical positions. Thus some of the bureaus have a skeleton organization which, through these key men, is able to maintain the work in a satisfactory manner without being so seriously affected by the turnover in the low grades and the predominance of employees of

mediocre efficiency in the routine positions. In the Division of Publications, however, the statutory roll does not adequately provide for the employment of such clerks. For instance, we have only one position at \$1,600 and only two at \$1,400. One of the additional \$1,600 positions recommended is needed in order that an appointment may be made of an executive clerk to take charge of the mails and files of the division. At present the files are maintained in each section throughout the organization, and the mailing work also is handled as an individual matter. This creates considerable confusion and makes adequate supervision and control of the work very difficult.

It is proposed to establish a central mail and file room to do all the mailing and filing of correspondence. This section probably will be composed of six or eight employees, since the files for the Offices of Exhibits, Information, and Motion Pictures will be included. We have sufficient clerks to handle the routine part of the work, but a thoroughly competent executive clerk is needed to install the new system and direct its operation. This plan is being used with considerable success in some of the other bureaus, where the clerks in charge of such sections are receiving salaries of \$1,800, \$1,980, etc. The second \$1,600 position is needed in order to secure a capable clerk who will have sufficient ability to supervise and assist in the preparation of special fiscal and administrative statements, assist in the preparation of estimates, visé outgoing correspondence, and act as a general assistant in handling special tasks which arise constantly in the administration of the work and which frequently can not be handled in a satisfactory manner at present because of the lack of such a qualified employee. As explained previously, the ability of our organization to do work of this kind is greatly impaired. The lack of sufficient employees of a high grade is making it extremely difficult to place the work of the division on an absolutely efficient basis. A clerk of considerable intelligence would be required for this particular work. The employee would have to be above the average. Clerks doing this kind of work in other bureaus are paid salaries of \$1,600 and higher, and we could not hope to secure a qualified man for less.

Item 46 recommends three new positions at \$1,400. As indicated in the note explaining this item in the Book of Estimates, it is proposed to utilize these three positions for obtaining additional stenographers. The very difficult situation we are in concerning the employment of stenographers is explained in the note under this item in the Book of Estimates. This situation has had the effect of seriously handicapping the work of the Division of Publications.

We are seriously in need of stenographers at this time and could obtain them if we had the positions available for their employment, such as the \$1,400 positions recommended for 1921. We have a tremendous volume of mail to handle in the Division of Publications, and while the replies have been reduced to printed circulars, cards, etc., just as far as practicable, there still remains more than can be handled properly with the present force of stenographers and typists. The low degree of efficiency of some of the stenographers we have had to employ at salaries of \$840 and \$900 per annum, the present entrance salaries in this division, is such that there is no doubt

that it would be economical to employ capable stenographers at more nearly the present salary standard. Naturally, the stenographers we are able to secure at these salaries are of very limited general education and usually are without experience; frequently we have to take them before they have completed their studies at night school. These five positions recommended, the two at \$1,600 and the three at \$1,400, will mean a great deal to us in our work in the Division of Publications, and I hope the committee will give them favorable consideration. As mentioned previously, the five positions will represent a net increase of only \$3,200, as, if they are granted, the estimates propose that five \$840 places be dropped. This would be done toward the end of the current fiscal year by letting the positions stay unfilled as vacancies occur through the expiration of temporary appointments, etc. No permanent employees would be dropped from the rolls.

The CHAIRMAN. Does that mean you are going to increase the salaries from \$840 to \$1,600?

Mr. REID. No, sir; they are not for promotions. They will be new places and new people, and these \$840 people will be dropped off the roll approximately as fast as they resign or temporary appointments expire. The turnover during the year in the \$900 roll has been 33 per cent and in the \$840 class 127 per cent.

The CHAIRMAN. Going through the list hurriedly I find there are 129 people at \$1,000 or less salary. That seems entirely out of line with everything else in the estimates. I would like to know why there are so many low-salaried people in this division.

Mr. REID. The character of some of the work of the Division of Publications is different from that in the bureaus where a large amount of scientific work is done.

The CHAIRMAN. I understand that a number do clerical work, while some are stenographers and typewriters.

Mr. REID. Yes, sir; there are all types of workers.

The CHAIRMAN. All have taken an examination and are under the classified service?

Mr. REID. Yes, sir.

The CHAIRMAN. Can you explain why they should be paid so much less than others?

Mr. REID. To go back through a number of years, the Division of Publications apparently has not asked for or been allowed increases at the same rate as the other bureaus.

The CHAIRMAN. I remember that Mr. Arnold made a very urgent appeal to the committee at one time for increases. We did allow a number of increases, but apparently this division has not been given the same consideration that others have.

Mr. REID. No; it has not.

The CHAIRMAN. You have a number of employees doing an easy class of clerical service?

Mr. REID. Yes, sir.

The CHAIRMAN. What do you pay the people, for instance, who handle the publications that are sent out under Members' franks?

Mr. REID. They are in the \$840, \$900, and \$1,000 grades. It is a routine matter. We can pick up people of that kind to do that sort of work, although, of course, the Government should not be pay-

ing any salaries that low because people can not live on them. You will not find commercial establishments, which require that grade of service, paying as low salaries, but we are depending upon the Reclassification Commission to improve the situation. We are now asking you only for a few new places that will be more or less key positions in the organization. They will be used to strengthen the present force and will be more or less supervisory over these lower-salaried places. It was our understanding that no increases were to be included in the estimates.

The CHAIRMAN. But, Mr. Reid, if it is proper to give relief to a number of them, we should give relief all along the line, not by piecemeal. We should reclassify and readjust the salaries.

Mr. REID. We are waiting upon the Reclassification Commission to accomplish that result.

The CHAIRMAN. The committee took this matter in hand once before. I think it can do it again. If the committee finds that there is discrimination against these employees or that inadequate salaries are being paid them, it is the duty of Congress to adjust the salaries. It is your duty to bring the matter to our attention, and we will be very glad to give it consideration.

Mr. RUBEY. Are you compelled to get permission from the Civil Service Commission to employ people temporarily? Do they fill these places permanently?

Mr. REID. It has been so difficult to fill some of these low-salaried positions that the Civil Service Commission at times has not been able to make certifications to us. Ordinarily the positions are filled through Civil Service appointment.

The CHAIRMAN. What would you suggest, taking as a whole, as a fair increase?

Mr. REID. I should think that none of them should be asked to work for less than \$1,100, or \$1,200.

The CHAIRMAN. Some are receiving less than \$1,000?

Mr. REID. Yes, sir.

Mr. ANDERSON. They all get the bonus and have been getting it?

Mr. REID. Yes; practically all of them.

The CHAIRMAN. If the committee should increase them, say, from \$100 to \$200, would that give relief?

Mr. REID. It certainly would. It would give material relief and would help them to get along.

The CHAIRMAN. Would that be fair to the others?

Mr. REID. In the other departments, for the character of the work, I think it would.

The CHAIRMAN. Of course, low salaries are also paid in other divisions and bureaus.

Mr. REID. I want to state here that the reason I have not said anything about the low salaries in the Division of Publications is that we are waiting upon the Reclassification Commission. Unless something results from that commission's recommendations, there will not be much of a Division of Publications in a year from now. Many people are leaving their positions because they can not afford to work for the low statutory salaries paid in the division.

The CHAIRMAN. Give us the turnover, please.

Mr. REID. There has been a turnover of 33 per cent for the \$900 positions and 127 per cent for the \$840 during the last fiscal year.

These are in the clerical grades. The turnover is even greater in the laborer grades. We can hardly do business under these conditions. We hire persons and about as soon as they are trained they go elsewhere to get better positions.

The CHAIRMAN. You spoke about bulletins sent out by Members of Congress. That is done in the Government Printing Office, is it not?

Mr. REID. The requisitions are made and the records are all kept in the Division of Publications. They are sent out mainly from the Government Printing Office.

The CHAIRMAN. That is, the Government Printing Office simply attaches the frank to the envelope?

Mr. REID. Yes, sir.

The CHAIRMAN. Is that done in your office?

Mr. REID. No; that is done in the Government Printing Office.

The CHAIRMAN. The recording is done in your division?

Mr. REID. In the division it is a matter of record and keeping the books and work of that kind.

The CHAIRMAN. Then it is bookkeeping the same as in other bureaus?

Mr. REID. One part of the division's activities is largely bookkeeping. There is the counting of millions of franks and checking up of quotas. Quite aside from this is the answering intelligently of a vast amount of miscellaneous mail. We are receiving about 2,000 letters every day.

The CHAIRMAN. It requires as much skill as is required in the average bureau?

Mr. REID. It certainly does. The designating of the publications to be sent these correspondents we regard as very important work.

The CHAIRMAN. What else do they do?

Mr. REID. We have a mail of more than 2,000 letters daily. It consists partly of direct requisitions upon the department for publications and partly of letters stating in general terms what is wanted. If the request is specific, for Bulletin No. 1001, for instance, the clerk writes the name on a frank and it is forwarded to the Superintendent of Documents for filling; but if the request is general, calling for information on various subjects or for bulletins of which we have no supply, that requires another type of reply and a higher grade of clerical ability. Much of this work is occasioned by the many miscellaneous requests received from constituents of Congressmen. That is why we are asking for these higher-grade positions, primarily to help improve that service.

The CHAIRMAN. You say they require a reply. Are the replies dictated?

Mr. REID. Form letters are used wherever possible, but of course there are many letters requiring special study and knowledge of our publications and those letters are dictated.

Mr. RUBEN. How many clerks does it take to handle the congressional distribution?

Mr. REID. There are about 50 employees in the section for handling the mail and other matters of distribution. I have not the details here as to how many of these handle the congressional mail, but there are quite a number.

Mr. RUBEY. It is a considerable number?

Mr. REID. Yes, sir; because Congress distributes about 5,500,000 bulletins every year, and the requests come in for anything from one bulletin up to a sack full.

Mr. RUBEY. Who fixes the allotments that go to each Congressman?

Mr. REID. There is an appropriation of \$200,000 for Farmers' Bulletins. We figure out how many bulletins we can print for that amount. There are about 500 Senators and Representatives; it is simply a matter of estimating how many we can give each Congressman. The wording of the law is to the effect that not to exceed four-fifths of the entire supply may be distributed by Congress. That amounts to 20,000 bulletins for each Congressman this year. The cost of printing and other matters in connection with it have gone up in price, and we have had to cut the allotment from 25,000 to 20,000 this year.

Mr. RUBEY. I was just reading here from your report that a distribution of something like 9,000,000 was set aside for congressional distribution. Is that true?

Mr. REID. The law says that four-fifths of the total amount may be distributed by Congress. We will give you up to that limit; but if you don't ask us for them, we take it for granted that you are willing for them to be distributed by the department.

Mr. RUBEY. Here is one point. Some Members use these and others do not. What becomes of those that are not used by some Members?

Mr. REID. In the past the policy has been to let this credit accrue to the Congressman from year to year; so we have a book credit running up to large figures. Because of an unwritten agreement between the department and Members of Congress that we would honor beyond the regular quota, provided we had them in hand, we did not feel that it was fair to cut them off short this year. We wrote each Member of Congress telling them we would try to honor requests beyond the 20,000 copies if we had them on hand. Next year we are planning to tell you that, because the appropriations are made for the printing and distribution of bulletins during a given year, we can not carry them over into a succeeding year. We can not reservoir them.

Mr. RUBEY. The point I want to get at is this: In my own case I have a purely agricultural district. The largest city in my district has about 3,000 inhabitants. I have a great demand for bulletins, and the amount set aside for me to use will not meet my demands at all. That is the reason I brought this matter up. In the State of Missouri we have what is called a board that gets out a course of study for the rural schools.

Mr. REID. Yes.

Mr. RUBEY. In that course of study they set forth the teaching of agriculture, and they put into that report certain Government bulletins, which they advise these teachers to get for the teaching of agriculture in their schools. I have a thousand teachers in my district. It is necessary, in order to give them a copy of each one of these bulletins, to send in the neighborhood of 20,000 bulletins. When I distribute bulletins to the teachers in my district for the teaching of agriculture—and I think that is the best distribution a man can make of them—I take on my entire quota right there. It occurred to me—

and I tried last year to get the department to see it that way—that a distribution of that kind along educational lines ought to be made by the department and that it ought not to be charged up against the Member of Congress. I am in a position now where I am begging for bulletins from somebody. I get letters every day from the school children in my district. They study a certain subject in agriculture and they want a bulletin upon that subject, and I am besieged by the young folk in my district. I want to accommodate them. I feel it is the best possible kind of distribution to make of these publications. I was just wondering whether there is any way of meeting that sort of situation. Here is a man who does not use his bulletins. After this year is over these bulletins will be out of print. Of course, if his quota goes on next year he could get the next year's bulletins, but it seems that some of us fellows who are using these bulletins to great advantage ought not to be shut off when there are a lot of others who do not use them at all and they are simply lying about unused.

The CHAIRMAN. Is it not a fact that there are more calls for the bulletins of early print than the later ones? Do not the neighbors become interested and ask for them, so that it is necessary to have them reprinted?

Mr. REID. Yes, sir. The bulletins are reprinted as long as they are up to date. They are revised periodically.

Mr. RUBEY. I am frank to say that the bulletins you are getting out, with the illustrations and pictures, are very attractive. They go into the community; they are seen and wanted, and that increases your efficiency in getting out excellent bulletins and, of course, increases our demand for them.

The CHAIRMAN. Is there some way of supplying these teachers?

Mr. REID. We are in a worse dilemma than you are. We are supposed to distribute about one-fifth of these bulletins. You can imagine the demands on the department when we get 2,000 letters a day and how many requests we have to turn down. We have to refer applicants to the superintendent of documents, from whom they can buy these publications.

The CHAIRMAN. And you refer them to Members of Congress?

Mr. REID. Yes.

The CHAIRMAN. We are all glad to have you refer them to us, but the question is, How can they be fully supplied?

Mr. REID. There are certain Congressmen who have city constituencies, who are not so familiar with the bulletins. These Congressmen do not care to distribute them to so great an extent as Members from the rural districts. There is considerable trading of bulletins or credit for bulletins among Members, and I do not see why that is not the best solution of the situation. You may be able to get more bulletins from some of the Representatives or Senators who do not use them. The Senators do not use them in such great numbers as the Representatives.

The CHAIRMAN. That reduces it to a begging or buying proposition. Members expend considerable money for the purchase of documents in addition to the cost of sending them out.

Mr. REID. That is a bad situation.

Mr. HARRISON. The new printing bill, which has been under consideration for the past 15 years, provides for distribution of publications on the value basis.

The CHAIRMAN. Item 33, one assistant photographer, \$900. Is that a fair salary?

Mr. REID. No, sir; that is \$300 below what it should be, if you want my candid opinion as to what this salary ought to be.

The CHAIRMAN. You say \$300. On what do you base that estimate?

Mr. REID. By comparing it with salaries of assistant photographers in other bureaus of the department.

The CHAIRMAN. How is the pay outside the department?

Mr. REID. This man happens to be in the motion-picture laboratory, and therefore he would command more than the ordinary aid. A man doing that character of work in a motion-picture laboratory would get fully \$300 more than this man.

The CHAIRMAN. How about the next one, item 34, one lantern-slide colorist, \$840?

Mr. REID. That case is the worst discrimination and worst injustice in the Division of Publications. I would like to point out that this lantern-slide colorist ought to be getting from \$1,200 to \$1,500 in order to bring her pay up to the scale for similar services in other departments. She is one of the best lantern-slide colorists in the department.

The CHAIRMAN. How much would she get outside of the department?

Mr. REID. From \$1,500 to \$1,800.

The CHAIRMAN. How about the item 35, one laboratory aid, \$900?

Mr. REID. This laboratory aid is a motion-picture man and is worth about \$300 more than he is now getting. A laboratory aid of his type in a commercial concern would get fully that and more.

The CHAIRMAN. Item 36 is also a laboratory aid; the salary in this case is \$840. What ought he to be getting?

Mr. REID. That work is about the same character as the aid at \$900 is performing. The position ought to pay \$300 more than the amount now provided.

The CHAIRMAN. Item 37 is also a laboratory aid; salary, \$720.

Mr. REID. That is about on the same order.

Mr. HARRISON. We had to increase the amount by \$450 in order to correct a typographical error which crept into the bill last year; the printer got the figures reversed, and instead of having a position at \$720, we got one at \$270.

The CHAIRMAN. I remember that it was not corrected.

Item 38, one assistant in charge of document section, \$2,000, changed to one assistant in distribution, \$2,000. That is tied up with item 20?

Mr. REID. That is just a change of designation.

The CHAIRMAN. Item 48, 18 clerks at \$1,000. What is the character of their work, and is the salary equitable?

Mr. REID. I will let Mr. Jump, the chief clerk, answer that.

The CHAIRMAN. We will be glad to hear Mr. Jump.

**STATEMENT OF MR. WILLIAM A. JUMP, CHIEF CLERK OF THE
DIVISION OF PUBLICATIONS, DEPARTMENT OF AGRICULTURE.**

Mr. JUMP. These employees at \$1,000 are distributed over the various sections. I think it is safe to say that practically every one of them performs work for which salaries of at least \$1,200 are paid in other bureaus of the department and in other departments of the Government. It just happens that they are there at \$1,000 because the Division of Publications has been bound by its statutory roll and has not been able to pay the present salary standard, which is usually \$1,200.

The CHAIRMAN. They get \$1,000 and the \$240 bonus, or \$1,240?

Mr. JUMP. I am speaking of the basic salary. I would say that their work compares with clerks at \$1,200, with the bonus of \$240, in other branches.

The CHAIRMAN. What is the character of the work?

Mr. JUMP. Some are stenographers, some are general clerks, some occupy positions which I consider are much higher grade than their salaries indicate. For instance, they handle the correspondence, of which you have already heard—miscellaneous correspondence, where a farmer writes in and wants all that we have on a particular subject.

The CHAIRMAN. Should they all be paid the same salary increase?

Mr. JUMP. In order to answer that intelligently, it would be necessary to give consideration to each place separately. We would be glad to submit a statement later showing the relative value of the positions. I would not say that they should all receive the same because they are scattered over nine different units in the division and performing varying grades of work.

The CHAIRMAN. Would you make it \$1,160 and \$1,200 in different places?

Mr. JUMP. For those who do stenographic work I do not believe the salary should be less than \$1,200; others performing a good grade of clerical work should receive \$1,100 as a basic salary, while those doing the more difficult tasks might be worth \$1,400. There are some there who belong in the \$1,000 grade.

The CHAIRMAN. How do you figure the 40 clerks at \$900, item 49?

Mr. JUMP. The same thing is true there. These clerks are scattered over these nine units. Perhaps seven of them are engaged in routine work, in what we call our index section. I would say \$1,100 would be a fair minimum salary for them to place them on the basis paid in other bureaus for similar service. Four of these people, as I recall, are stenographers assigned to the stenographic section; we have had to pick them up wherever we could get them, because the Civil Service Commission could not supply them at this low salary from their registers. Those stenographers are just as much entitled to receive \$1,200 per annum as stenographers anywhere else, and I believe a basic salary of \$1,200 would be fair. The remainder, about 30, do all kinds of work, such as that connected with the automatic-addressing machinery, miscellaneous correspondence, and so on. Certainly none should get under \$1,100 a year, and \$1,200 would be, I think, a fair figure.

The CHAIRMAN. You are comparing these salaries with those paid in other departments or other bureaus of your department?

Mr. JUMP. Yes, sir. We should pay them on a basis comparable with the rest of the department. I was connected with the Bureau of Animal Industry for about 10 years and the Bureau of Markets for two years, and I am basing my opinion on my observation of salaries paid in the other bureaus.

The CHAIRMAN. How about other departments?

Mr. JUMP. I would not undertake to say as to that.

Mr. HARRISON. Usually the minimum in the Government service for newly appointed clerks and stenographers is \$1,200; practically all new appointments are made at that figure.

The CHAIRMAN. The next item, No. 50, is for 15 clerks, at \$840. Is the character of that work about the same?

Mr. JUMP. In that grade we have three stenographers who should receive a minimum of \$1,200. The rest of these clerks certainly should go to \$1,000 if the committee adopts the basis of adjustment suggested in the cases already discussed.

The CHAIRMAN. You assign them to various sections of the divisions, do you not?

Mr. JUMP. We have nine sections of work, and these clerks are assigned to certain sections and reassigned from time to time, according to the needs of the work, so that it is impossible to give offhand a specific description of the duties in each case. We should be glad to submit a detailed statement showing the duties attaching to each position.

The CHAIRMAN. How about two skilled laborers at \$900, item 53?

Mr. JUMP. This is supplanted by item 57, which carries three places. One of these is a man assigned to duty as a machine operator; he is a very skilled machine operator and does the same character of work as the five machine operators at \$1,200, under item 51.

The CHAIRMAN. In your opinion, the salary of these skilled laborers should be \$1,200?

Mr. JUMP. Yes, sir. It just happens these three men have been in the service all along. The other two work with the cuts in the illustration section.

The CHAIRMAN. How about the seven skilled laborers at \$840, item 54?

Mr. JUMP. For these seven at \$840 a minimum of at least \$1,000 would be necessary in order to do justice to them.

The CHAIRMAN. How about the next, item 55, four skilled laborers at \$780?

Mr. JUMP. Of the four skilled laborers at \$780, three certainly should be given \$1,000. The fourth one is a chauffeur, and to put him on a par with other chauffeurs his salary certainly should be made \$900.

Mr. HARRISON. \$1,080 is the usual salary for chauffeurs.

The CHAIRMAN. How about the three messengers or laborers at \$900, in item 57?

Mr. JUMP. That is the item we have just discussed; they do the same work as \$1,200 people; \$1,200 would be a fair salary for them.

The CHAIRMAN. In item 58 you have 10 messengers or laborers at \$840.

Mr. JUMP. Four of those people are machine operators and are in the same class, as far as their work is concerned, with the \$1,200

people. The remaining six certainly should be given a minimum of \$1,000, because they are mature people and perform work that could not be done by immature people.

The CHAIRMAN. Item 59, four messengers or laborers at \$780.

Mr. JUMP. That was discussed under item 55.

The CHAIRMAN. Item 60, 14 messengers or laborers at \$720.

Mr. JUMP. \$900 should be a fair salary for these \$720 people. They are assigned various kinds of duties, ranging from those of an ordinary laborer to those of machine operators.

The CHAIRMAN. Item 61, on page 197, one skilled laborer at \$720.

Mr. JUMP. That is combined with item 60.

The CHAIRMAN. Item 62, three messengers or laborers at \$600 each.

Mr. JUMP. These men are doing the usual work of laborers; they should be paid \$900 a year in order to do them justice. They work hard.

The CHAIRMAN. Item 71, two messenger boys at \$420. That is the regular rate?

Mr. JUMP. Those two positions are vacant; we are unable to get boys to accept the positions at that salary. The same is true of item 72, two messenger boys at \$360 each. We are deprived of the services of four messenger boys, that we need, because of the low salary.

The CHAIRMAN. What should they be?

Mr. JUMP. It is practically impossible to get messenger boys at less than \$60 a month. We have seven, under item 68, at that salary now. We have to pay that rate in order to obtain them. Boys are getting more on the outside.

The CHAIRMAN. Item 70, four messenger boys at \$480.

Mr. JUMP. Two of the boys we now have have been in the service for two years or more. If it is necessary for us to pay \$60 to get new boys it would be an injustice to pay only \$480 to the boys we now have. They should get \$720.

The CHAIRMAN. Item 69, four messenger boys at \$600.

Mr. JUMP. The same is true of them. It just happens that we have those boys and they are staying with us.

Mr. RUBEN. How in the world are you able to keep them?

Mr. JUMP. It is difficult to keep them, and there is a great turnover in the messenger force, as they are constantly getting better opportunities.

Mr. HARRISON. That is true throughout the department.

The CHAIRMAN. Item 68, seven messenger boys at \$720.

Mr. JUMP. Sixty dollars a month seems to me to be a fair salary. We would have no trouble in filling the positions at that salary.

The CHAIRMAN. Item 63, one folder at \$1,000. Is that all right?

Mr. JUMP. That position presents a peculiar situation. The employee who occupies that position is assigned to clerical duties that should pay \$1,200. The place should be designated as clerk. The present title is not descriptive; it was originally given to an employee working on mail.

The CHAIRMAN. How about item 64, two folders at \$900?

Mr. JUMP. One of those folders is a machine operator and should receive the same salary, \$1,200, that we are paying to the five machine operators under item 51. The other has charge of our janitor

force. It just happens that they are old employees. I don't know how they live on their small salaries.

The CHAIRMAN. Item 66, six skilled laborers at \$1,000.

Mr. JUMP. Five of these employees are machine operators; the remaining one is doing a grade of work that is really supervisory. They should all receive \$1,200; that is the lowest salary at which we can get new, capable machine operators.

The CHAIRMAN. You are basing your estimates on the salaries paid by other divisions and bureaus?

Mr. JUMP. Yes, sir.

Mr. VOIGHT. How about these three charwomen at \$480 each, under item 75 at the bottom of page 197?

Mr. JUMP. That is the usual classification. The Reclassification Commission probably will have something to do about that.

There are also four charwomen at \$240 each, item 76. These charwomen usually have other positions or work outside. They come in and work in the morning, cleaning the offices.

The CHAIRMAN. How about your employees in charge of the various sections,

Mr. JUMP. They have various titles. I presume Mr. Reid will wish to present these.

The CHAIRMAN. Thank you, Mr. Jump. You might take them up section by section, Mr. Reid.

Mr. REID. Item 3, on page 192, is the first one. That is at the beginning of the statutory roll. This place of chief editor at \$3,000 was vacant for about five months before we could find a man to fill it at that figure. That position is worth at least \$3,500 a year in the Government, because people of the proper caliber, who are able to edit agricultural papers or who know the agricultural business of the country, know farming, are graduates of agricultural colleges, and have been brought up through newspaper, magazine, or other publication work, are commanding all the way from \$4,000 to \$7,500 on the outside.

The CHAIRMAN. I take it that we would hardly be justified in taking up these salaries of \$2,000 and over except upon direct recommendation. With the others in charge of sections, however, where the salary is less than \$1,500, we might take them up.

Mr. REID. There is one indexer at \$1,400, item No. 24, page 193. Then there are two draftsmen or photographers, at \$1,600 each, item 28, page 193. Those two men are worth \$2,000 apiece. They are key men and very good.

The CHAIRMAN. Who are they?

Mr. REID. One is Dr. Olmsted and the other is Mr. Stevenson. One has charge of drafting work and poster work. The other is chief photographer of the division.

The CHAIRMAN. Is Mr. Crandall with you?

Mr. REID. He is not in our division.

The CHAIRMAN. If we increase the salaries of the employees under them, I take it that the heads of sections should be given some consideration also.

Mr. REID. Item No. 41, page 194, one assistant, \$1,800. That is Mr. Bracey, assistant in charge of the document section. He has 50 people under him. He is one of the hardest working men in the division, and that place is worth fully \$2,000, if not \$2,200. We

have in mind, possibly, giving Mr. Bracey charge of other work, in addition to his present duties.

The CHAIRMAN. Item 43, page 195, one foreman, miscellaneous distribution, \$1,500. What about him?

Mr. JUMP. That is a position that should pay a higher salary, eventually, when we proceed with a plan for further consolidating the addressing and mailing work of the department.

The CHAIRMAN. What is the next one?

Mr. JUMP. The section heads receive salaries ranging from \$1,800 up, and, unless you want to consider salaries in those grades, it would be difficult for us to suggest. We could submit a statement—

The CHAIRMAN. What I had in mind is that, if we increase the salaries of these lower places first and you have others in supervisory positions receiving low salaries, probably the persons in charge of the various sections should be given consideration in connection with the others. Have you any heads of sections at \$1,200 or \$1,500?

Mr. JUMP. We have one, Mrs. Thorn, who is listed as assistant at \$1,400; she has about 16 employees under her supervision. She is a very efficient worker and has been very successful in supervising the work of the clerks engaged on our mailing-list record.

The CHAIRMAN. Where does her position appear here?

Mr. JUMP. In item 22. She is one of the two assistants at \$1,400.

The CHAIRMAN. I take it that, if you increase the salary of all the clerks in a certain division, the chief would feel slighted unless some consideration were given to his position.

Mr. JUMP. As a matter of fact, several of the subsection heads or unit supervisors—those who occupy the positions requiring the supervision of the work of other employees—are included in the \$900 and \$1,000 grade; and that should be taken care of if the committee wishes to consider adjusting the salaries in these grades.

The CHAIRMAN. Then it would be necessary to make a graduated scale to take care of them?

Mr. JUMP. There possibly would be 10 positions in the grades \$840, \$900, and \$1,000 that should be selected for special consideration, and, since we did not know that the committee would consider anything in the way of salary increases, we are not prepared to discuss the matter in detail; but we would like the privilege of submitting a statement.

The CHAIRMAN. Will you submit a list?

Mr. JUMP. Yes. We could give it much more intelligent consideration in that way.

Mr. HARRISON. That can be inserted in the record.

(The statement referred to follows.)

PROPOSED READJUSTMENT OF LOW-SCALE SALARIES IN THE DIVISION OF PUBLICATIONS.

The following statement is submitted by the chief of the Division of Publications concerning certain positions in and below the \$1,200 grade, the salaries of which, it is understood, the committee desires to consider at this time with a view to place them on an equal basis with similar positions in other branches of the service.

The statement shows (1) the present salary of the positions involved, (2) the salaries which it is considered would meet the object in view, and (3) the duties of the respective positions.

There are a number of positions in the Division of Publications in the grades above \$1,200 per annum, the salaries of which should be adjusted, but mention of these has been omitted as it is understood the committee desires to consider only the lower grades at this time.

The data submitted have no bearing on the 11 additional positions requested for the Division of Publications summarized on page 198 of the Book of Estimates. These additional employees are deemed necessary to the efficient operation of the publication work for the next fiscal year.

Increase.

Item 82:

Present, 10 draftsmen or photographers, at \$1,200-----	\$12,000	
Proposed, 10 draftsmen or photographers, at \$1,400-----	14,000	\$2,000

Four of these employees at \$1,200 are illustrators and designers, and the remaining 6 are photographers. These employees are engaged in skilled work, as their occupation implies, in connection with the publications of the department. Their work is of a grade much higher than the salary indicates, as shown by the bulletin cover designs, posters, etc., issued by the department. Extensive education, training, and experience is required and it is believed \$1,400 per annum should be a minimum for this class of employee.

Item 83:

Present, 1 assistant photographer-----	\$900	
Proposed, 1 assistant photographer-----	1,140	240

The employee assigned to this position is engaged in work in the motion-picture laboratory in connection with the making of film. The duties of the position require a knowledge of the technique of the motion-picture work and it is believed the position warrants a salary of \$1,200 per annum.

Item 84:

Present, 1 lantern-slide colorist-----	\$840	
Proposed, 1 lantern-slide colorist-----	1,200	360

This employee is engaged not only as a lantern-slide colorist, as the title implies, but in addition is called upon from time to time to do the original work of an artist, in which she is skilled. Transparencies prepared by this employee have been one of the most attractive features at the department exhibits. The work is of a highly skilled character, and the salary paid at present, \$840 per annum, is considerably below a fair compensation. It is believed the position warrants a salary of at least \$1,200 per annum, based upon the work performed and the salaries paid in similar positions in other branches of the service.

Items 85, 86, and 87:

Present, 1 laboratory aid (85)-----	\$900	
Proposed, 1 laboratory aid-----	1,080	180
Present, 1 laboratory aid (86)-----	840	
Proposed, 1 laboratory aid-----	1,020	180
Present, 1 laboratory aid (87)-----	720	
Proposed, 1 laboratory aid-----	900	180

These 3 employees, at \$720, \$840, and \$900 per annum, respectively, are aids in the motion-picture laboratory. They splice, test, patch, inspect, and assist generally in the making of motion-picture film. The work requires a knowledge of the technique of a motion-picture laboratory, and it is believed warrants salaries \$1,080, \$1,020, and \$900 per annum, respectively.

Item 47:

Present, 16 clerks, class 1-----	\$19,200	
Proposed, 4 clerks, class 2, \$5,600; 12 clerks, class 1, \$14,400-----	20,000	800

Item 47—Continued.

The positions occupied by 4 of the employees in the \$1,200 grade, the duties of which are described below, it is believed at this time warrant salaries of \$1,400 per annum.

(a) This employee supervises the shipping and receiving work of the Division of Publications, including the operation of the motor trucks, wagons, etc., and the employees engaged therein. The work is of tremendous volume, involving receipt from the Government Printing Office and other sources of millions of pieces of printed matter, certifying bills for same for payment and redistribution to the proper sources.

(b) This employee acts as clerk and stenographer to the assistant in charge of the distribution of publications. The work requires a thorough knowledge of the handling of the great volume of department publications.

(c) This employee reads and refers to the proper sections all of the incoming mail of the Division of Publications, Offices of Exhibits and Information, and Motion-Picture Section. The work is of considerable volume and requires intelligence and a thorough knowledge of the work handled in the various sections.

(d) This employee is the principal assistant to the officer in charge of the miscellaneous correspondence unit of the division, and in his absence supervises the work of a force of approximately 19 clerks. Considerable executive ability is required and the employee must be familiar with the methods of handling the thousands of requests for publications received here.

Item 48:

Present, 18 clerks, at \$1,000 each.....	\$18,000
Proposed, 10 clerks, class 1. \$12,000; 8 clerks, at \$1,140	
each, \$9,120	21,120

\$3,120

Ten of the \$1,000 positions now on the roll, it is believed should pay salaries of \$1,200 per annum. The duties of these positions are as follows:

(a) This employee acts as "time clerk" for the Division of Publications. The duties are to keep the record of leave of absence, etc., and give notification of deductions to be made from the pay roll. The work is of considerable volume, entailing the keeping of a detailed record of the attendance of approximately 200 employees, and is of a character for which higher salaries are paid in other branches of the service.

(b) This employee acts as the principal assistant to the officer in charge of the mailing-list records of the division, in the absence of the latter; 14 employees are engaged in that work.

(c) The duties of this position are those of stenographer and clerk to the acting chief clerk of the division: In addition to a knowledge of stenography the employee must be familiar with the organization and business operation of the entire publication work.

(d) This employee examines congressional correspondence requesting Farmers' Bulletins, and issues orders based on these for mailing from the Government Printing Office, frequently determining what publications are to be sent.

(e) Same as (d) above.

(f) This employee has charge of the stenographic unit under the distribution section. She supervises a force of six stenographers, reviews their work, and dictates answers to certain routine correspondence.

(g) This employee supervises a force of 18 persons engaged in the machine-addressing work conducted by the Division of Publications.

(h) The duties of this position are to handle correspondence requesting publications, designate the publications to be sent, etc.

(i) The duties of this position are to act as information clerk to visitors, selecting publications on subjects desired by them, and assisting in filling orders received from county agents.

Item 48—Continued.

(f) This employee acts as clerk and stenographer to the assistant in charge of our addressing, duplicating, and mailing section.

The remaining eight positions in the \$1,000 grade, it is believed should pay salaries of \$1,140 per annum. The duties of these positions are described below:

(a) This employee keeps individual accounts of all miscellaneous publications, acts for the superintendent of distribution in carrying out details involved in schemes of distribution for department publications.

(b) The duties of this position are those of a typist, making changes in the mailing lists, and arranging mailing-list orders for the Government Printing Office.

(c) This position involves the handling of correspondence requesting publications and consists principally in drawing orders on the Government Printing Office for mailing the bulletins desired.

(d) This position involves principally the work of revising mailing lists and filing index cards in connection therewith.

(e) The duties of this position are to handle correspondence requesting publications, draw orders for mailing the proper bulletins, etc., by the Government Printing Office.

(f) This employee is assigned to folding room work and the duties of the position consist chiefly of folding, wrapping, filing, sealing, and franking envelopes.

(g) Two of the \$1,000 clerks, suggested for increase to \$1,140, are assigned respectively to the Offices of Information and Exhibits, where they are engaged in typewriting, filing, and accounting work in connection with the operation of these offices.

Item 49:

Present, 40 clerks at \$900 each.....	\$36,000
Proposed, 5 clerks, class 1, \$6,000; 35 clerks, at \$1,080 each, \$37,800	43,800
	<hr/>

\$7,800

(a) Five of these employees are stenographers and typists, and as such it is believed these positions warrant salaries of \$1,200 per annum.

(b) The positions occupied by the remaining 35 employees, the duties of which are described below, are believed to warrant salaries of \$1,080 per annum. The employees occupying 12 of these positions are engaged in handling the requests for publications, of which approximately 2,000 are received daily. They search the indexes, designate publications to be sent, draw orders for mailing them from the Government Printing Office, keep records of the publications sent, etc.

Three of the employees in this class are assigned to duty as correspondence file clerks.

Six of these employees are engaged in routine clerical work in connection with the mailing list records of the department. They record the additions, removals, and changes on the mailing lists, arrange orders for same on the Government Printing Office, etc.

Two of these positions are occupied by employees assigned to the addressing section, where they operate addressograph machines, etc.

Two of the \$900 positions are occupied by employees engaged in typing, arranging, and filing index cards, searching indexes for information, etc., in the index section.

Two of the positions in this grade are occupied by employees assigned to folding-room work. The duties consist principally of folding, wrapping, franking, inserting, sealing, and filing miscellaneous orders in preparation for mailing. The work is very strenuous.

Eight of these positions are filled by employees assigned to general clerical work and typewriting in connection with the accounting, addressing, printing, and illustration sections of the division.

Item 50:

Present, 15 clerks, at \$840 each-----	\$12, 600	
Proposed, 15 clerks, at \$1,020 each-----	15, 300	\$2, 700

Three of the employees in this grade are stenographers and typewriters.

Five of these positions are occupied by employees assigned to the addressing, duplicating, and mailing section. The duties of the positions are to operate duplicating and addressing machines, emboss mailing list plates, maintain mailing list files, and assist at times in folding, inserting, wrapping, mailing, and related work.

Three of these positions are filled by employees assigned to the mailing list record section, where they are engaged in typing, alphabetizing, and filing address cards of persons whose names appear on the lists.

Two of the employees in this grade are assigned to the index section, where the duties consist of typewriting, arranging index cards, and searching for information in the index files.

Two of these employees are assigned to miscellaneous clerical work—one in the distribution and one in the illustration section. The latter is engaged also in typewriting.

It is believed these positions warrant a salary of \$1,020 per annum.

NOTE.—At present there are 21 positions in this grade. The estimates for 1921 proposed that 5 of these be dropped altogether, provided the two \$1,600 and three \$1,400 positions requested for new employees are granted. One \$840 position also is proposed for change of title to laboratory aid. With these deductions fifteen \$840 positions would remain.

Item 51:

Present, 5 machine operators, at \$1,200 each-----	\$6, 000	
Proposed, 2 machine operators, at \$1,440 each, \$2,880; 3 machine operators, at \$1,200 each, \$3, 600-----	6, 480	480

Two of these \$1,200 positions, the duties of which are described below, are considered to warrant salaries of \$1,440 per annum.

One of these is occupied by an employee who acts as mechanic for all of the automatic addressing equipment of the Division of Publications. He is charged with the supervision of the operation and maintenance in good condition of six graphotype machines and seven addressing machines, and other mechanical equipment of a similar nature. The machinery represents a considerable investment by the Government and its oversight represents quite a responsibility.

Another acts as foreman of the machine operators engaged in multigraph and mimeograph work. In this capacity he supervises the work of 6 employees.

Item 57:

Present, 3 messengers or laborers, at \$900 each-----	\$2, 700	
Proposed, 3 messengers or laborers at \$1,080 each-----	3, 240	540

One of these positions is occupied by an employee whose duties are those of a machine operator in the multigraph section.

The other 2 are occupied by employees assigned to the illustration section, where the work consists of finishing, binding, and matting lantern slides, mounting and ferrotyping photo prints, and acting as custodian of the original illustrations and cuts used in the publications of the department.

It is believed these positions warrant a salary of \$1,080 per annum.

Item 58:

Present, 10 messengers or laborers, at \$840 each-----	\$8, 400	
Proposed, 10 messengers or laborers, at \$1,020 each-----	10, 200	1, 800

Item 58—Continued.

Four employees in this grade are assigned to folding-room work, consisting of addressing envelopes, filling miscellaneous orders for publications, etc.

Three of the employees in this grade are assigned to duty as laborers and messengers. They are engaged in storing bulk publications, carrying mail, and other duties of laborers as required by the needs of the service.

One employee, who occupies an \$840 position, is assigned to duty as an addressing-machine operator.

One employee in this grade is assigned to duty as chauffeur of one of our motor trucks.

One employee is engaged in work in the photographic laboratory consisting of making photostats and solar-bromide prints.

These positions are filled by adults and the character of the work performed it is believed, under present conditions, warrants a salary of \$1,020 per annum.

Item 59:

Present, 4 messengers or laborers, at \$780 each-----	\$3, 120
Proposed, 4 messengers or laborers, at \$1,020 each-----	4, 080

\$900

Two employees in the \$780 grade are engaged in the work of machine operators in connection with our addressing and duplicating work.

One employee in this grade performs the duties of a chauffeur, driving one of our motor trucks.

One employee is assigned to folding-room work, consisting of folding, inserting, mailing, etc.

These positions are all filled by adults and it is believed the character of the work warrants a salary of \$1,020 per annum.

Item 60:

Present, 14 messengers or laborers, at \$720 each-----	\$10, 080
Proposed, 14 messengers or laborers, at \$900 each-----	12, 600

2, 520

Nine employees in this grade are assigned to duty as machine operators in connection with our automatic addressograph system.

Three of the employees in the \$720 grade perform the regular work of a laborer, consisting in the handling and storage of bulk publications; sacking, and assisting in moving mail and other heavy material in connection with shipping, etc.

Two of the employees in this grade are assigned to work in the photographic laboratory operating the photostat machine, mounting photographs, maps, charts, etc.

The work performed by the employees who occupy these positions, it is believed, is such as to warrant a salary of \$900 per annum.

Item 62:

Present, 3 messengers or laborers, at \$600 each-----	\$1, 800
Proposed, 3 messengers or laborers, at \$900 each-----	2, 700

900

Two of the employees in this grade are engaged in the miscellaneous duties of a laborer—cleaning the offices, removing waste material, and other miscellaneous duties of a laborer as required.

One position in this grade is filled by an employee assigned to the motion-picture laboratory, where he is engaged in keeping the laboratory clean, carrying film back and forth, and making himself generally useful in the preparation of film.

It is believed these positions warrant salaries of \$900 per annum.

Item 63:

Present, 1 folder-----	\$1, 000
Proposed, 1 assistant-----	1, 200

200

The employee who occupies this position performs the duties of a distribution record clerk. The duties include keeping a stock account of Farmers' Bulletins and an individual account of

Item 63—Continued.

the distribution for each Senator and Representative in Congress. Also preparation of records on condition of stock of publications. The employee has been in the service more than 25 years, and the wide knowledge of the publication work and the responsible nature of the duties performed it is believed warrant fully a salary of \$1,200 per annum.

Item 64:

Present, 2 folders, at \$900 each.....	\$1,800
Proposed, 2 messengers or laborers, at \$1,080 each.....	2,160

\$360

One of the employees in this grade is assigned to duty as operator of an automatic addressograph machine.

The other acts as custodian of the building and supervises a force of eight laborers and charwomen.

It is believed the duties of these two positions warrant a salary of \$1,080 per annum.

Item 65:

Present, 2 skilled laborers, at \$1,100 each.....	\$2,200
Proposed, 2 skilled laborers, at \$1,200 each.....	2,400

200

One of the laborers, at \$1,100, is assigned to handling miscellaneous requests for publications, selecting the bulletins to be sent, and preparing the necessary orders for mailing upon the Superintendent of Documents, Government Printing Office.

The other laborer is assigned to the duties of a machine operator in connection with our automatic addressograph system.

It is believed the duties performed by the employees occupying these two positions warrant a salary of \$1,200 per annum.

Item 66:

Present, 6 skilled laborers, at \$1,000 each.....	\$6,000
Proposed, 3 machine operators, at \$1,200 each, \$3,600; 3 skilled laborers, at \$1,200 each, \$3,600.....	7,200

1,200

Five of the employees in this grade are assigned to duty as machine operators in connection with our addressograph, graphotype, multigraph, mimeograph machines, etc. It is a skilled grade of work requiring considerable training and experience. Three of these employees have a civil-service status as "machine operators."

The other employee in this grade supervises a force of several employees engaged in maintaining a stock of bulk publications for use of the various bureaus and offices in the Department of Agriculture. The duties of the position require a knowledge of the large volume of publications, posters, etc., and ability to produce them when called for.

It is believed the duties of the employees occupying these positions are such as to warrant a salary of \$1,200 per annum.

Items 69, 70, 71, 72:

Present, 4 messenger boys, at \$600 each (69), \$2,400; 4 messenger boys, at \$480 each (70), \$1,920; 2 messenger boys, at \$420 each (71), \$840; 2 messenger boys, at \$360 each (72), \$720.....	\$5,880
Proposed, 6 messenger boys, at \$720 each, \$4,320; 6 messenger boys, at \$600 each, \$3,600.....	7,920

2,040

The messenger boys, as their title implies, are assigned to messenger work, consisting of running errands, routing and carrying mail, distributing publications, performing duties of an office boy, helping in the photographic laboratory, etc. The \$360, \$420, and \$480 positions are vacant a great part of the time owing to our inability to secure and retain boys at these salaries. The turnover in these grades is extremely high, the boys not remaining long enough to become familiar with the location of the various offices before they secure better positions elsewhere. This causes considerable inconvenience in the transaction of business.

Items 69, 70, 71, 72—Continued.

- Under present conditions it is considered the services of first-class messenger boys are worth salaries of \$600 and \$720 per annum.

Total increase, if above changes are adopted..... \$28,760

STATEMENT OF MR. EDWY B. REID, CHIEF OF THE DIVISION OF PUBLICATIONS, DEPARTMENT OF AGRICULTURE—Continued.

Mr. REID. This morning we were talking about the total appropriation requested for the Division of Publications. We are asking for additional places amounting to \$15,050; for labor-saving machinery and supplies, \$1,000; furniture and fixtures, \$280; telephone, telegraph, freight, and express, \$150; and miscellaneous expenses, \$350; making a net actual increase of \$16,830. The reduction in the exhibits' appropriation from \$100,000 to \$50,000 leaves us with a request for \$33,170 less than was appropriated for the same purposes last year. That may not be entirely evident at the first glance at these estimates, because we have tried to bring into the Division of Publications three extra units. The Office of Information, the Office of Exhibits, and the motion-picture activities. The people doing this work have been carried on the rolls of other branches of the department, and the proposed change will not increase the department's appropriation. Therefore, this is not an actual increase in the Division of Publications.

We are actually asking for less money than we did a year ago. We will do away with a few low-salaried places and with the additional higher-salaried positions bring the Division of Publications into a good strong unit. We would have to ask for these extra people even if we had not been trying to bring these units into one, because the old Division of Publications was very loosely organized. It was not giving the service that it should, and, in order to articulate the Department of Agriculture with the public properly, we should have these extra positions.

The CHAIRMAN. That is, assuming that the transfers are made and activities are added to it?

Mr. REID. No, sir; the new positions are not primarily contingent on the proposed consolidation, but, as stated, are needed to put the Division of Publications, as at present organized, on an efficient basis.

The CHAIRMAN. We had better take up the additional items commencing with page 199.

Mr. REID. We ask for an increase of \$1,000 under the item for labor-saving machinery. This amount is needed for the purchase of new machines to replace old ones; duplicating and addressing machines, stencil-cutting machines, and multigraphs, mimeographs, and things of that kind.

Mr. ANDERSON. Is there a considerable increase in the work of the division from year to year?

Mr. REID. The publicity that we have given to the department's publications is reflected directly in increased work on the part of the Division of Publications. There is a tremendous increase from one year to another.

Mr. ANDERSON. Is there anything to indicate that at all? Is there any way in which you can indicate the extent of the increase?

Mr. REID. The Division of Publications is called upon to do mimeograph and multigraph work, and maintains mailing lists on the addressograph system for a number of the bureaus and offices of the department.

The Office of Information alone during the last fiscal year sent in approximately 750 stenciled press notices—a greater number than in any other year with the exception of 1917-18, when the department's activities were expanded temporarily under the food-production act. Several million impressions of these stencils were made, envelopes addressed and filled, and the material placed in the mails by the Division of Publications.

The constant wear and tear on the addressing and duplicating machinery makes it imperative to purchase new equipment from time to time to enable the division to handle the department's work.

The publicity given the department's publications is reflected in the increase in the demand for bulletins, as shown by the distribution figures in a table I have prepared. This shows the output in the various lines of publication and information work since 1914. With your permission, I will insert this statement in the record.

(The statement referred to follows:)

Information and publication work of the Department of Agriculture.

[Fiscal years ending June 30.]

Activities, publications issued, etc.	1914	1915	1916	1917	1918 ¹	1919 ¹
New Farmers' Bulletins issued.....	55	77	62	84	130	90
Other publications issued.....	1,097	836	976	1,132	965	840
Reprints issued (all kinds).....	474	393	357	390	341	401
Total number of publications of all kinds distributed.....	36,780,125	37,376,377	46,252,457	47,912,886	99,222,321	62,218,829
Number of pages duplicated (multigraphed, mimeographed etc.).....	4,040,219	5,218,727	4,770,737	6,016,276	5,767,692	5,267,641
Mailing list changes (machine lists).....	79,188	135,357	98,877	89,142	82,372	140,650
Envelopes addressed by machinery.....	3,686,877	5,286,281	5,098,333	5,420,248	6,772,398	5,980,642
Names on mailing lists maintained in Division of Publications (as distinguished from those at Government Printing Office).....	116,324	180,798	181,107	206,132	250,789	268,755
Assembling, stapling, paper cutting, etc.....	4,426,505	2,964,403	5,767,676	4,584,950	3,975,017	9,778,217
Drawings prepared ²	2,061	2,520	1,887	1,840	2,483	1,760
Lantern slides prepared.....	5,528	15,812	14,077	21,367	21,819	26,991
Photographic output.....	112,262	138,832	118,441	127,907	172,066	181,006
Motion pictures completed during year ³				5	7	18
Motion pictures available at close of year (subjects) ⁴				33	39	57
Motion-picture prints available for distribution by departments ⁴				105	145	244
News articles, etc., issued by Office of Information.....	512	571	590	864	1,022	890
Fairs at which department exhibited.....	2	5	7	10	18	435

¹ A considerable part of the increase in 1918 and 1919 was incident to the war activities under an appropriation made available by the food production act.

² It is impossible to gauge the amount of illustrating and designing in one year by the number of drawings prepared. It may take a draftsman two weeks or more to prepare an intricate piece of work, and he may make 10 easy small drawings in one day. During the past few years production of tracings and small charts has had to be curtailed in order to produce a more popular style of illustrations, such as cover designs, posters, etc.

³ The motion-picture work was not conducted as an activity of the department as at present until the fiscal year 1917.

⁴ The department has exhibited at 57 fairs during the current fiscal year.

Mr. VOIGT. Instead of sending the Members' franks to the Government Printing Office, would it not be more expedient to have a supply of these bulletins in your office and send them out from there?

Mr. REID. We think so; but the law makes it necessary for us to send them to the Government Printing Office.

Mr. HARRISON. The department always thought that was a mistake.

The CHAIRMAN. We had that up a few years ago, and the distribution end was transferred to the Government Printing Office by act of Congress.

Mr. VOIGT. Is there a law that compels you to do that?

Mr. REID. Yes. It would facilitate matters a great deal if we handled the distribution ourselves. We have a great deal of trouble to keep our lists the same as those of the Government Printing Office. The Government Printing Office has nothing to do with sending out lists of crop estimates or news stories. The Printing Office is far behind much of the time in sending out publications.

Mr. HARRISON. There are a great many complaints about delays in sending out publications through the Superintendent of Documents.

The CHAIRMAN. We will pass on to the next item, Mr. Reid.

Mr. REID. Item 79, for "Envelopes, stationery, and materials, \$9,000," involves an apparent increase of \$1,500. There is no actual increase, however, as this merely provides for the transfer of that amount from the appropriation for "Miscellaneous expenses" of the Secretary's office, which fund has been reduced accordingly. It represents the amount that has been allotted from the Secretary's appropriation for paper and envelopes for the Office of Information for the current fiscal year. With the consolidation of the Office of Information and the Division of Publications the expenditure should come under the Division of Publication's fund in order to simplify the accounting and make the administration of the work more logical and convenient.

Item 80, "Office furniture and fixtures, \$1,600," contemplates an increase of \$280 over the appropriation for this object during the current fiscal year. This slight increase will cover additional furniture and fixtures required, as the Division of Publications, beginning July 1, will be called upon to supply furniture and fixtures for the Office of Information, Office of Exhibits, and Motion Picture Section, which now obtain such supplies from the office of the Secretary. The amount recommended for furniture and fixtures is conservative, as were it not for the need of rigid economy we would like to ask for a considerably larger sum under this heading in order to replace some of the very old equipment in use in the Division of Publications. At present we are able to do this but slowly, as a considerable portion of the appropriation, due to rising costs, etc., is taken up in meeting current needs.

Item 81 proposes the insertion of the word "hereafter" in the language authorizing the department to loan, rent, or sell copies of motion-picture films under certain conditions. This change is recommended in order to make the legislation permanent and avoid the necessity of repeating the proviso year after year.

Item 82 recommends an increase of \$150 in the appropriation for telephone and telegraph service, and freight and express. Nine

hundred dollars is recommended, whereas the appropriation for the current year is \$750. As explained in the Book of Estimates, a part of this amount will be required to provide for telephone service for the Office of Information and the office having charge of motion-picture activities, which will be consolidated with the Division of Publications under the plan of reorganization. This expense heretofore has been met from the appropriation, "Miscellaneous expenses," under the Secretary's office. Additional funds also are needed to cover transportation charges on motion-picture films in consequence of the increased demand for the exhibition of motion pictures, lantern slides, etc.

Item 83. No change is recommended.

Item 84, "for purchase of manuscripts, traveling expenses, electrotypes, illustrations, and other expenses not otherwise provided for, \$4,350." A slight increase—\$350—is recommended in this item, which amount is necessary to provide for necessary expenses of the Office of Information heretofore paid from the appropriation, "Miscellaneous expenses," under the Secretary's office, and to meet in a degree the general advance in the cost of all items coming within the scope of this appropriation.

Item 85, "to enable the Secretary of Agriculture to make suitable agricultural exhibits at State, interstate, and international fairs held within the United States."

You will notice that the paragraph has been amended so as to eliminate specific mention of the National Dairy Show at Chicago. However, it is our intention, if we get this appropriation, to show at this big exhibition at the Fat Stock Show, and also at other national shows, such as the swine exposition; but we think it hampered us somewhat last year to have a specific appropriation for the National Dairy Show.

The CHAIRMAN. I take it that the dairy people will register a vigorous protest if it is eliminated. How would you take care of them if we should drop this language?

Mr. REID. They would be taken care of in the regular way of making exhibits the same as we did this year, only it would not be mentioned specifically. If we mentioned them we ought to mention the Fat Stock Show and all the others.

The CHAIRMAN. What is the average expense for these shows?

Mr. REID. We have been successful in showing at 57 fairs and expositions this year. We have had five circuits carrying representative work of the department.

The CHAIRMAN. What is the average expense?

Mr. REID. We have spent about \$60,000 on the 57 fairs.

The CHAIRMAN. What is the largest amount expended in connection with any of them?

Mr. REID. The largest was in connection with the National Dairy Show, for which \$25,000 was specifically provided in this item.

The CHAIRMAN. What was the expenditure last year—some of the bigger State fairs, say, in Minnesota and Iowa?

Mr. REID. The cost of the Illinois and Indiana State Fair was \$1,300.

The CHAIRMAN. Is that about the largest amount?

Mr. REID. At the Iowa fair it was \$1,420; Wyoming State Fair, \$1,200. That is the way it runs.

Mr. ANDERSON. What is the cost of the National Dairy Show?

Mr. REID. \$21,000; at the International Stock Show it was \$5,000. There is a big discrepancy between the cost of these two exhibits, but we were able to make a very good showing at the International because the circuits were in and we could combine the material that had been out to State fairs and send it to the International; and we really put on a better show than the \$5,000 indicated.

The CHAIRMAN. If we eliminate the language as suggested, what would you do with these larger shows—give them all the same amount?

Mr. REID. We couldn't do that.

The CHAIRMAN. The dairy show is national in character.

Mr. REID. We couldn't do that, because the character of the exhibits changes and the demand for material is different at different times. The national shows usually are specialized in character, and we have to prepare material especially for them. It sometimes happens that we can use some of the material that is prepared for State fairs or other exhibits.

The CHAIRMAN. Would you put on as many shows next year as you have during the present year?

Mr. REID. No; we could not.

The CHAIRMAN. That, of course, would depend on the appropriations made, I suppose.

Mr. REID. On a \$50,000 appropriation we can't make more than half the shows we did this year.

The CHAIRMAN. Only half?

Mr. REID. Not more than half. Further than that, we will not have any money left to prepare exhibits for the next season.

The CHAIRMAN. You spent \$60,000 last year; you have \$40,000 in the Treasury, and, if that is made available with this \$50,000, you would have \$90,000; that is \$30,000 more than you spent this year.

Mr. REID. This table was made up a little while ago. I think we have something like \$30,000 now with which to prepare for shows next year.

The CHAIRMAN. \$30,000 and \$50,000 would give you \$80,000. Would that not enable you to give about the same number of exhibits that you did last year?

Mr. REID. Not quite as many.

The CHAIRMAN. How many less?

Mr. REID. I don't suppose we could make over 40 shows.

Mr. ORMSBY. Possibly 40. Mr. Chairman, the material we used this year on the circuits was prepared, for the most part, with money we had left over from last year's appropriation of \$40,000. During the year 1918 we covered, with the aid of the State-fair associations, about 35 fairs; but the fair associations bore part of the expense. This year we bore practically all expenses except for space; we paid for no space but this year had to bear the entire expense for local drayage, installation charges, labor, carpentry work, and hauling, which during 1918 was borne by the fair associations.

Mr. ANDERSON. Don't you think that ought to be paid by them?

Mr. ORMSBY. I think so; but, inasmuch as the members of the two large fair organizations known as the American Association of Fairs and Expositions and the International Association of Fairs and Ex-

positions were instrumental in having Congress authorize \$100,000 for agricultural exhibits at fairs during the past year, they felt that the department should pay all expenses except for space. In my opinion, the fairs should bear local expenses, such as hauling to and from the cars, for space, and for local common labor to assist in unpacking and repacking the exhibits. Of course, they should not be expected to pay for special services, such as special electrical power for the operation and lighting of models and cases, the construction of special tables, cases, etc., plumbing and steamfitting when necessary in installation work, special decorating features, etc. Such work of a special character, however, is only necessary where the department makes an unusual or special exhibit, such as is desired at the dairy and live-stock shows, those national or international in scope and character, and those where more money is expended than at the fairs of general importance to the public.

Mr. HARRISON. It has always been our policy to require the local authorities to pay expenses of that sort, Mr. Chairman, and we always insisted upon that requirement until this appropriation was made available. The appropriation was provided, as you know, to cover practically all expenses connected with our exhibits, with the exception of the rental of space and possibly a few other items.

The CHAIRMAN. This affects every section of the country. You appreciate that it is a live issue. When we get on the floor of the House I want to be in a position to state specifically what is going to be done.

Mr. HARRISON. I just want to point out one thing: It is always necessary for us to keep a balance over for the following spring's work, because the appropriations for the succeeding fiscal year do not become available until July 1, and we have to begin the preparation of our exhibits much before that time in order to be ready when the fair season opens. The fair season begins about July 1, but we begin preparing for it early in the spring.

The CHAIRMAN. I have received a number of communications about the swine show. That would be a new one, would it not?

Mr. HARRISON. That would be a new one, and I imagine the department will have an exhibit there if the necessary arrangements can be made.

The CHAIRMAN. There is the same request for the dairy show. Assuming that you are to take care of the dairy show, the swine show, and all the other shows that you took care of this year, how much money would be required to do justice to all of them?

Mr. ORMSBY. If you will permit me there, Mr. Chairman, I would like to distinguish between the nature of the exhibits we made at the dairy show from those displayed at the ordinary State fairs. At the dairy show the department staged live demonstrations along dairy lines and models in action and occupied more than twice the amount of space occupied at the State fairs. Of course, this was a special show for which specific provision was made. At the State fairs the work of the department is shown with models, charts, and photographs. Live demonstrations and special models are required and necessary at large and special shows, such as the dairy show.

The CHAIRMAN. It is really required?

Mr. ORMSBY. Yes; the dairy show requires a great deal of demonstrational work.

The CHAIRMAN. It takes in the whole country, does it not?

Mr. ORMSBY. Yes, sir. For example, at the dairy show last October the department showed the cost of keeping a dairy cow for one year, together with her production. This exhibit consisted of a live Holstein cow and her calf, her feed requirements, and her milk production in one year, illustrated by actual feed and models; whereas at a State fair we would put that in small-model form, with supplementary charts and photographs.

The CHAIRMAN. More money is required, then, for a national show than a State show?

Mr. HARRISON. The department, in ordinary circumstances, would probably expend more money at national shows, like the National Dairy Show and the Swine Growers' Exposition, because they are national in scope and they are much larger than the ordinary State fair. Not only that, but we will specialize our exhibits at these national fairs in such a way that they will be particularly interesting to the people who visit them. For instance, in the case of the live-stock show, the live-stock exhibits will predominate, while at the dairy show, dairy matters will predominate.

The CHAIRMAN. Following out that line, how much money would be required?

Mr. ANDERSON. For the whole business?

Mr. HARRISON. You mean to make exhibits at 58 places?

The CHAIRMAN. Figuring on the same basis as last year allowing for increases and treating them all alike?

Mr. HARRISON. I think it will take, Mr. Chairman, at least \$100,000 to do that next year.

The CHAIRMAN. With a total of \$100,000 for exhibits, could you also take care of the swine show and the dairy show?

Mr. REID. It will take as much to run us next year as it took this year, including the spring work.

The CHAIRMAN. You ought to be able to put on two good shows. You put on a very good exhibit at the fat-stock show.

Mr. REID. That happened to break just right. We had our circuits arranged so we could use that material. If we had had to secure new material we couldn't have put on any such show for \$5,000.

The CHAIRMAN. You will have the same circuits next year and the fat-stock show will come at the same date?

Mr. REID. If the fat-stock show will be that late.

The CHAIRMAN. It is generally the same week.

Mr. REID. It is generally the first week in December.

The CHAIRMAN. It is practically always at that time.

Mr. REID. There is the swine show, for instance; it will be a new show for us. We have already requests from a lot of new fairs for next year, and undoubtedly the fairs at which we showed this year will repeat their requests. I believe it will take a little more than the \$100,000 to put on as many shows as we did this year.

The CHAIRMAN. You spent \$60,000 of the \$100,000, and you are going to do practically the same work next year, with the exception of the swine show?

Mr. REID. We have to have some money with which to prepare exhibits. We want at least as much left over next year as we have this year, to continue the work.

The CHAIRMAN. But you have \$40,000 in the Treasury for that.

Mr. REID. About \$30,000, as in addition to the \$60,000 spent on specific shows, there are expenditures of about \$10,000 for general items.

The CHAIRMAN. You would be able to make the necessary preparation with \$30,000. Then, if we appropriate \$100,000, you will have \$100,000 for next year's work.

Mr. REID. Of course, by making some changes in the arrangements with the fairs, and getting them to bear a part of the expense, we might be able, with \$100,000, to show at these fairs and also at some additional fairs. Otherwise we may not be able to do that.

The CHAIRMAN. If we eliminate the language, would you give the same consideration to these national shows that you did this year?

Mr. REID. Yes; with the \$100,000.

The CHAIRMAN. Whatever appropriation we make.

Mr. REID. We would like to put on just as good shows, or a little bit better.

In the case of the international this year, we had to confine our efforts to the hay and grain section. We have a lot of information in the Bureau of Animal Industry that never has been put before the people in proper form.

The CHAIRMAN. Is it not a fact that at any dairy show your exhibit would be the main attraction, while at the fat-stock show it is simply a side-show attraction, because many go to the latter especially to see the fat stock.

Mr. REID. Certainly.

The CHAIRMAN. It is necessary to put on as large an exhibit at the fat-stock show as it would be at a dairy show?

Mr. ORMSBY. At the National Dairy Show the department exhibit occupied something like 11,000 square feet of floor space, while at the International Live Stock Show it occupied slightly over 4,000 square feet.

The CHAIRMAN. I think what you put on at the dairy show this year was very good. It was a very good show. Were you in charge of it?

Mr. ORMSBY. Yes, sir.

Mr. REID. We didn't do anything regarding the work of the Bureau of Animal Industry at the International Live Stock Show; it all had to do with the hay and grain sections. The Bureau of Animal Industry is anxious, if it can, to be in the show.

The CHAIRMAN. The States had a number of exhibits. What you had there fitted in very nicely.

Mr. REID. Yes; in that section.

The CHAIRMAN. We are asked all sorts of questions about these shows. What can we say to these people? If we appropriate \$100,000, can you do as well by them next year as you did this year? That is, will you try to do as well by them as you did this year?

Mr. REID. Yes. We can't take on more than two or three new shows, however. We can do as well by the old shows—that is, the same number, 57.

The CHAIRMAN. And with \$50,000 you would have to cut it down to 40?

Mr. REID. To 25.

The CHAIRMAN. You say you would have to reduce the number to 25?

Mr. REID. Yes, sir. That would be on the average of only \$2,000 per show, to provide for getting up all the material, shipping it out, hiring the help, and everything else connected with the work.

Mr. ORMSBY. The department received about 65 requests this year from State fairs and larger expositions. As Mr. Reid says, we took care of 57.

The CHAIRMAN. You received 65 requests?

Mr. ORMSBY. Yes, sir; we could have taken care of all of them if we had had more men and material to make up a new circuit. Our circuits cover from 7 to 10 fairs each. There were only five original circuits, and we had to make up an extra circuit consisting of Wyoming, the International Farm Congress at Kansas City, and the Evansville Centennial Exposition at Evansville.

The CHAIRMAN. How about your Kansas City show?

Mr. REID. We took care of that with a complete set of material that we sent to Wyoming, supplemented by material from the other circuits that were passing from the north to the south through Kansas City.

The CHAIRMAN. That can be taken care of next year if we make a \$100,000 appropriation?

Mr. ORMSBY. Yes, sir.

Mr. ANDERSON. You will be relieved somewhat on this proposition next year if we put in a limitation the effect of which would be to require the local expenses to be borne by local people, won't you?

Mr. ORMSBY. It would be a great help to us, because the expense varies so much in different places. For example, I have had places where I would get a car unloaded for \$20, and at other places it would cost from \$50 to \$75.

Mr. ANDERSON. They wouldn't be so apt to gouge the local people as they would the National Government?

Mr. ORMSBY. No; and most State fairs and organizations have their own labor which they can turn over to us; whereas this past year we have paid for that labor, which the State fairs themselves ought to furnish.

Mr. ANDERSON. They certainly ought.

The CHAIRMAN. I submit a letter from Mr. Skinner, of the National Dairy Association, whom the committee knows, and which, without objection, will be inserted in the record.

CHICAGO, ILL., October 15, 1919.

HON. GILBERT N. HAUGEN,

House of Representatives, Washington, D. C.

MY DEAR CONGRESSMANS Probably the most useful and constructive exhibit ever made by any department of our Government was that made by the bureaus and divisions of the Department of Agriculture at the National Dairy Show just held in Chicago, under appropriation made by Congress. This whole exhibit was replete with information on dairy subjects for both producer and consumer, and was a center of attraction throughout the entire show.

It gave the people of America and our foreign visitors an insight into the results of scientific and practical development work of years for this most vital industry to humanity, and disclosed the activities of the Dairy Division particularly for improvement in American dairying, embracing the manufacturing of dairy products that our country has heretofore been dependent upon

imports for, and was beyond question of the greatest possible value to our industry as a whole. This division has had little opportunity in the past to let the people know just what form of effort was being conducted by it, so that the whole exhibit was astounding in its distinct relations to the present world conditions of dairying, and it would be unwise indeed to not follow this splendid work up, especially since the knowledge gained by those in charge of the exhibits this year will assist in making a second exhibit of even far greater value to the American farmer. I therefore ask and urge that an appropriation be made for a similar exhibit for 1920, and that it be made early, that the department officials may have a full year in which to prepare.

Will you kindly advise me as to what we should do to start such an important matter going at the earliest moment possible.

Thanking you most sincerely for your splendid help in getting this year's appropriation through, I beg to remain,

Very sincerely, yours,

W. E. SKINNER,
General Manager.

The CHAIRMAN. Are there any questions that the committee desires to ask?

Mr. ANDERSON. I take it that this new language is intended to make it certain that part of this money can be spent in the District of Columbia in the preparation of exhibits?

Mr. REID. That is almost a prerequisite to our getting up the exhibits. We were handicapped in every way this year because we couldn't employ men to do this work. We had to go to the bureaus and put on people who know nothing about the business, you might say. It was their first experience. The result was that the kind of assistance we secured was not nearly as good as we would like to have. We would like to have permission to employ some probably for part time and some for the whole year, on work of this kind; we should have men who will devote their entire time to getting up exhibits.

The CHAIRMAN. Why not include that in the item of general expenses and not divide up every item by this language? Can you not assign people from one division to another or from one section to another?

Mr. ORMSBY. The only objection I see to that, Mr. Chairman, is that the bureaus can not spare their best men for this work.

The CHAIRMAN. But the same men can be employed under one head as well as under several heads.

Mr. REID. The people have to be brought into the District to do the work. The work has to be done here largely; and we have had to resort to renting three warehouses down in Alexandria, just across the line, in order to have our material where we can get at it. That arrangement is very inconvenient. We would like to rent a warehouse in the District where we could see this material and work with it and not lose so much time going back and forth; we could then have it in much more presentable form.

The CHAIRMAN. We have one rent item; why not have all rent included in that rent item? Why not make an adequate appropriation under one head and thus dispose of the whole matter?

Mr. HARRISON. That would be entirely satisfactory to us so far as rent is concerned, Mr. Chairman, but the language for the employment of persons in the District of Columbia is absolutely necessary if we are going to have any force with which to do this exhibit work.

The CHAIRMAN. That was the contention last year, but you got along without it.

Mr. HARRISON. But the arrangement this year was merely a make-shift; but if we are going to have this responsibility every year we ought to be in position to employ a force capable of doing the work, and not have to do it in makeshift fashion.

The CHAIRMAN. What is the difference whether we appropriate \$10,000 for employing people on page 10 or page 11? Isn't that all the same?

Mr. HARRISON. It doesn't make any difference where the appropriation is made, so long as we have authority to employ some people, as the need may arise, to handle the exhibit work.

The CHAIRMAN. Exactly.

Mr. HARRISON. I understood that you wanted to provide for all the exhibit work in one paragraph.

The CHAIRMAN. The idea that 15 or 20 branches should keep a separate account of little rent items is all nonsense. You should have it all under one head.

Mr. HARRISON. That would be entirely satisfactory to us.

The CHAIRMAN. You could probably save considerable in the rent expenditure by doing so.

Mr. REID. We will be glad to put that under the regular department item for rent, but it still leaves us in the air in regard to hiring clerks and people to do this sort of work, getting the exhibits together, and so on. We have got to have more or less of a force that knows something about exhibits, Mr. Haugen.

The CHAIRMAN. Why not appropriate a lump sum for whatever amount is required for rent for the department—whether it is for one division or one bureau it matters not, but let it be all in one lump sum. When it comes to the employment of people here in Washington, let us not reiterate this language in every section.

Mr. HARRISON. Mr. Haugen, perhaps it might be well to call your attention to the fact that an introductory paragraph preceding the subappropriations for the various lines of work in practically every bureau has a clause providing for the employment of such persons as may be necessary in the District of Columbia. In the Division of Publications, however, that language does not appear in the introductory paragraph, which you will find on page 199; therefore none of the lump-sum appropriations of the Division of Publications is available for the employment of persons, with the exception of the item of \$2,500, which specifically provides for extra labor and emergency employment in the District of Columbia.

The CHAIRMAN. Put it under the head of emergency.

Mr. REID. If you want to put it under the head of emergency employment, that will be agreeable to us.

Mr. HARRISON. That is item 86, on page 202. The language could be inserted as an introductory clause and accomplish the same purpose.

Mr. ANDERSON. How much money does that require?

Mr. REID. It varies with the size of the appropriation. We can't tell exactly.

Mr. ORMSBY. At \$100,000, Mr. Anderson, it would run between \$10,000 and \$15,000, I presume.

Mr. HARRISON. \$15,000 would be the maximum.

The CHAIRMAN. All the rent can be included in one item, and all labor, emergency employment, etc., in the District of Columbia can

go in one item. What is the use of reiterating it hundreds of times in one bill?

Mr. HARRISON. The only possible objection I can see, and it is certainly not a controlling objection, is that the fair people will not recognize these items if they are included under other paragraphs and will say that you are not appropriating enough for exhibits.

The CHAIRMAN. The Secretary of Agriculture has power to see that the appropriation is expended in that way.

Mr. HARRISON. We will see that the money is expended for the purpose for which appropriated, but many people will look at the exhibit item and assume that that is the only money available for the work.

The CHAIRMAN. If we put the money in there and it is actually used for that purpose that is all that is necessary.

Mr. REID. If we can increase the appropriation under this item for extra labor and emergency employment from \$2,500 to about \$17,500, that would be all right.

The CHAIRMAN. How much is required in the District of Columbia; \$17,500?

Mr. REID. I am figuring on a \$100,000 appropriation for exhibits. You could subtract \$15,000 from that and strike out the words "and employment of persons and means in the District of Columbia and elsewhere," and increase the other item by \$15,000.

The CHAIRMAN. You mean item 86, on page 202?

Mr. REID. Yes, sir.

The CHAIRMAN. There may be other items in the other bureaus, or are these the only ones?

Mr. HARRISON. These are the only ones I know of, Mr. Chairman.

The CHAIRMAN. What is the next item?

Mr. ANDERSON. You have some new language there in item 87.

Mr. REID. Yes; this item provides as follows:

Hereafter employees of the Division of Publications may be detailed by the Secretary of Agriculture for publication, informatoin, and related work in any of the bureaus or offices of the department, for duty in or out of the District of Columbia, and employees of the bureaus and offices may also be detailed to the Division of Publications for duty in or out of the District of Columbia, traveling expenses of employees so detailed, when necessary, to be paid from the appropriation of the bureau or office in connection with which such travel is performed.

We are merely asking for permission to have employees of other bureaus detailed in times of stress to the Division of Publications, so we may have some elasticity in our organization. If the exhibits work is to become a part of the division's work, the detail from other bureaus will be necessary, so bureau employees may temporarily be detailed to do exhibit work.

Mr. ANDERSON. Under that item you could start an entirely new extension service under the Division of Publications.

Mr. REID. That is not our purpose.

Mr. ANDERSON. You could detail men and send them all over the country.

Mr. REID. We will have to have some such wording in the bill in order to send bureau men out on exhibits. Men from the bureaus have to accompany these exhibits. If there are 57 fairs to take care of and three men are required to go out to each fair, we must get the men somewhere.

Mr. HARRISON. They can only be detailed to do the work that the Division of Publications is authorized to do, Mr. Anderson.

Mr. ANDERSON. That division has pretty broad publicity functions.

Mr. HARRISON. Authority now exists to detail persons from the bureaus to the office of the Secretary.

Mr. ANDERSON. I am not referring to what is at all; what I want to know is what is going to be.

Mr. HARRISON. Some of the informational work, as I have indicated, is now conducted under the office of the Secretary, which has authority to detail to and from the bureaus; and in connection with the proposed transfer of that work from the office of the Secretary to the Division of Publications, we are simply asking that the same authority with reference to details be given to the division.

Mr. ANDERSON. We agreed to the details to the Secretary's office because we thought that was sort of under the Secretary's thumb and that there wouldn't be any abuse of it on that account.

Mr. HARRISON. The committee also agreed to details to the library and to the Division of Accounts and Disbursements; in other words, to other service branches of the department, the branches which serve the whole department. In these cases, when a bureau wishes a particular piece of work done and the existing working force can not handle it, we can call on the bureau to detail some of its employees for the purpose. The authority to detail exists only in the case of what are known as the service branches of the department, namely, the library, the Division of Accounts and Disbursements, and the Secretary's office, and we are asking that the same authority be given to the Division of Publications.

The CHAIRMAN. You say the Secretary has the authority now to make the details?

Mr. HARRISON. He now has authority to make details to and from the Secretary's office.

The CHAIRMAN. Why has he not authority in this instance?

Mr. HARRISON. Because the law is specific. It provides for details only to and from the office of the Secretary. Another law was passed in 1912 authorizing details to and from the library.

The CHAIRMAN. Has he not the authority to detail from one division to another?

Mr. HARRISON. No, sir.

Mr. ANDERSON. There is a general law that prohibits that, as I recall it.

Mr. HARRISON. You will note that the provision suggested here speaks to the Secretary, and the Secretary will pass on each detail made under it. The Chief of the Division of Publications will not have the authority to make details himself, but he will have to present the facts to the Secretary in each instance, and the Secretary will determine whether the detail is justified and whether the employee concerned is actually needed in the Division of Publications for the performance of the proper and legitimate activities of that division. There will, therefore, be a constant check on these details.

The CHAIRMAN. My understanding is that there is a law against detailing from one department to another at an increased salary.

Mr. HARRISON. I think you have in mind transfers from the statutory to lump-fund rolls.

The CHAIRMAN. No; I am talking about transferring or detailing from one department of the Government to another.

Mr. HARRISON. These details will be all made at the same salaries. There will be no authority to detail at increased salaries.

The CHAIRMAN. I have reference to the authority granted the Secretary.

Mr. HARRISON. I do not know of any such authority with reference to increased salaries.

The CHAIRMAN. My understanding was that he could transfer from one department to another, but not at an increased salary.

Mr. HARRISON. You are referring to a provision included in the urgent deficiency act about two years ago which prohibits the transfer of an employee from one executive department to another at an increased salary and also the promotion of any employee transferred from one department to another within the period of one year. But that is a different matter entirely. That is a case of transfer between departments. There has been some suggestion regarding the repeal of that law.

The CHAIRMAN. So if a person is needed in one division and not in another, he must stay there, holding down a swivel chair, and do nothing?

Mr. HARRISON. No, sir; his appointment can be terminated; or, if there is a need for his services in the other division, he can actually be transferred.

The CHAIRMAN. Can he not be detailed?

Mr. HARRISON. Suppose we are making an exhibit of the work of the Bureau of Plant Industry at the International Hay and Grain Show. Some technical men must accompany that exhibit and demonstrate it on the ground. Now, we want to detail these men to the Office of Exhibits, so that they will work under the general supervision of the officer who is in charge of all the exhibits at that particular show, but their salaries will continue to be paid by the Bureau of Plant Industry. We call it a detail when the salary of the employee continues to be paid by the bureau from which he is detailed, but he works under the supervision of another agency. A transfer is where he leaves one bureau entirely, goes off the rolls of that unit, and is transferred to the rolls of another unit. These are two entirely separate and distinct matters. The details will be merely temporary and are necessary to take care of situations such as I have just indicated.

The CHAIRMAN. I understand that, but I supposed they had the power to detail from one bureau to another. They have the right to transfer, and I should think they should have the right to detail.

Mr. HARRISON. The reason why the Secretary does not have such authority is because there is an old general law which provides that employees shall be paid from the appropriations of the bureau in which he is actually working and from none other. Now Congress has given the Secretary authority to make details to and from the office of the Secretary—that is, from any bureau to the office of the Secretary, or from the Secretary's office to any bureau. It has also given him authority to make details to and from any bureau to the library and also from the library to any bureau.

The CHAIRMAN. That is a provision of general law? Would you not prefer to have it the other way?

Mr. HARRISON. We would prefer it, of course, Mr. Chairman, but we are asking for the authority contained in the provision under discussion, as I explained to Mr. Anderson, merely because we are transferring the exhibit and information work to the Division of Publications. We are asking only what we really need. More general authority would be highly desirable and would provide elasticity which we ought to have in the administration of the work of the department.

Mr. ANDERSON. You had it once and it was abused to such an extent that Congress had to put an end to it; at least they did.

Mr. HARRISON. I do not think the department of agriculture abused the authority.

Mr. REID. We are asking this merely for the temporary detail of people for one, two, or three months to help us in the main work of preparing and showing the exhibits. That is all we contemplate by this phraseology.

The CHAIRMAN. How was this taken care of last year? Were they detailed by the other bureaus to do that particular work?

Mr. REID. The exhibit work was in the office of the Secretary; therefore he had the authority to detail from the bureaus.

The CHAIRMAN. What is next?

Mr. REID. That completes it so far as I am concerned.

Mr. HARRISON. That completes the Division of Publications.

The CHAIRMAN. Thank you very much, Mr. Reid.

Mr. HARRISON. We would like to take up next the estimates of the Federal Horticultural Board, Mr. Chairman.

Mr. RUBEY. Not this evening. Mr. Chairman, we have been here all day, and this is the last day of the session. We have been here all the afternoon.

The CHAIRMAN. Very well; the committee will stand adjourned.

(Thereupon, at 4 o'clock p. m., the committee adjourned, to meet again at the call of the chairman.)

**COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
*Tuesday, January 6, 1920.***

AFTER RECESS.

The committee reconvened at 2 o'clock p. m., pursuant to the taking of the recess, Hon. Gilbert N. Haugen (chairman) presiding.

The CHAIRMAN. Mr. Harrison, who will we hear next?

BUREAU OF CROP ESTIMATES.

Mr. HARRISON. Mr. Estabrook, Chief of the Bureau of Crop Estimates, is here and will present the estimates of that bureau.

**STATEMENT OF MR. L. M. ESTABROOK, CHIEF OF THE BUREAU OF
CROP ESTIMATES, DEPARTMENT OF AGRICULTURE.**

Mr. ESTABROOK. Mr. Chairman and members of the committee, the Bureau of Crop Estimates is asking for a considerable increase in its appropriation—over half a million dollars—at a time when Congress has publicly announced its policy and intention of reducing the expenses of the Government, in response to a very widespread and public demand for some relief from the heavy burdens of war taxation. Now, I assume that members of the committee, and that Congress, will want to know why, and very likely your constituents will want to know why, under the circumstances, the Bureau of Crop Estimates is asking for an increase at this time. I think there are very convincing reasons—conclusive reasons—why this increase should be made for the next fiscal year, and I should therefore like to have the opportunity to make a connected preliminary statement, before taking up the details of the bill.

First of all, I should like to answer this question, which is fundamental, and which has a direct bearing on the bureau's request for an increase of appropriation: What is the greatest need of agriculture to-day? Unquestionably the answer to that question is, to make the business of farming a profitable business. Is not that the object of every farmer in the United States—to make his business a profitable business? And is not that the object of the Federal Department of Agriculture, to make the business of farming more profitable? And so also with the State colleges of agriculture and the State experiment stations and the State extension services and the county agents, for which millions of dollars of public money,

Federal and State, are appropriated annually; they have for their primary object to make the business of farming more profitable. And when this committee recommends legislation to Congress, and Congress passes it, for the promotion of agriculture, is not the sole object of that legislation to make the business of farming more profitable? And in making the business of farming more profitable, is not such legislation in the interest and for the welfare of all the people?

It is hardly necessary to remind the members of this committee that agriculture is still the greatest basic industry in the United States, if not in the world. On the basis of present prices, and the growth that has taken place since the last census, the capital valuation of the farms and equipment in the United States is now in excess of \$80,000,000,000. No other industry in the United States can compare with it. No combination of any three industries you may select can compare with it. And anything that makes the business of farming more profitable tends to make agriculture more prosperous; and unless agriculture is prosperous other industries can not expect to prosper. It is fundamental; it is paramount.

In addition to that capital valuation of over \$80,000,000,000, agriculture is the source now and for all time to come of the food supply of the entire United States. It contributes very largely to the raw materials used in other industries. It contributes very largely to our export trade. Its annual production and increase in the wealth of the United States is in excess of \$20,000,000,000. This year it is nearly \$25,000,000,000. And so, in considering any request for an increase in an appropriation of this kind, it is necessary to bear in mind the fundamental and paramount importance of the great industry which we are trying to serve.

A second fact which this committee should bear in mind in connection with this request for an increase in appropriation is this: The farmers of this country are not rolling in wealth, as many city people have accused them of being. They are organizing more rapidly, more effectively, and more completely than at any previous time in their history. The farm-bureau movement is growing and spreading from New York westward through all the great corn belt States. They have formed State federations, and in November last they formed a national federation.

Now, what is the first thing that those organizations must have in order that they can accomplish the purposes for which they are organized? They absolutely must have dependable data with respect to the essential facts of production and supply. And in the same way the great Federal Department of Agriculture and the State colleges of agriculture and experiment stations, and the State extension services and the county agents, for which many millions of dollars of public funds are expended annually, must have essential data with respect to production and supply before they can function properly or efficiently or economically.

Agriculture as an industry, like all other industries, has two main lines of business, one production and the other marketing. The production end of the farm business has already been largely developed. The farmers have been specializing on production all their lives. They already know how to produce. They can very readily produce

in excess of the demand, as was demonstrated during the war, and all that the Federal and State agencies can do to assist farmers on the production end is to devise ways and means to produce crops more efficiently and more economically; in other words, to reduce the cost of production.

But the whole marketing end of agriculture is largely undeveloped. For half a century, more or less, these great public agencies, the Federal Department of Agriculture, the State colleges of agriculture and experiment stations, and the State extension services and county agents, which are maintained at public expense for the promotion of agriculture, have devoted their main energies to increasing production. It is only within the last six or eight years that Congress realized the necessity for developing the marketing end of agriculture, and that it has made liberal appropriations for the establishment and maintenance of the Federal Bureau of Markets, a bureau which has before it the greatest undeveloped field of any organization in the Department of Agriculture, a bureau which has the greatest opportunity for service to the farmers of this country; and it was within the same period that State legislatures have realized the importance of the marketing end of the farm business, and they also have been establishing bureaus of markets.

But before the marketing end of the farm business can be properly developed, before these great organizations for which millions of dollars are appropriated annually can operate effectively or economically, they must have essential data with respect to production and supply, because such data are fundamental.

The demand for this kind of information, for information with respect to production and supply, has been constantly increasing. That demand focusses on the Bureau of Crop Estimates. That demand had trebled and quadrupled before the beginning of the World War. It was greatly stimulated when the Great War broke out; and when the United States entered the war in the spring of 1917 the bureau was literally overwhelmed with requests for information as to the present and prospective food supply, not only of the United States, but for practically all countries of the world. The demand for that information came from the Cabinet, from Congress itself, from other branches of our own department, from the War and Navy Departments, from the Council of National Defense, the Food Administration, the War Industries Board, the War Trade Board, and a host of other war emergency organizations, to say nothing of the thousands and thousands of requests that came from business men and farmers, and State institutions, and from writers, and public men of all sorts.

In the bureau's attempts to take care of this demand with its limited appropriations, it has developed what we believe to be the most efficient organization in the entire Government service. I doubt if there is any organization in the entire Government service that can show the accomplishment that the Bureau of Crop Estimates can, with its modest and inadequate appropriations. It has already extended beyond the limit of its present resources. It can not carry on to the end of the fiscal year its present service on its present appropriation.

Now, to provide for the future and in response to specific demands which are continually coming to the bureau in increasing volume and insistence, we have prepared a systematic, comprehensive, and constructive program for the expansion and improvement of the service. Every feature of that program has been demonstrated to be entirely feasible. There is not a single item in the program that is in any sense experimental. We know absolutely what we can do. We know that our skeleton organization can be very readily expanded. We know that results of very great practical and financial value to every farmer in the United States can be obtained very shortly after the necessary funds are provided.

Now, I should like to ask and to answer a question which I think will interest the committee, which has a direct bearing on my argument, and it is this: Why and how data with respect to production and supply are absolutely necessary to make the farm business a profitable business; are absolutely necessary to enable Federal and State agencies to function properly, effectively, and economically?

The profitableness of the farm business depends upon three things. First is the production of marketable surpluses. A business can not be profitable unless it produces something to sell. Second, it depends upon the cost of production; and third, upon the prices the farmers receive. Unless there are marketable surpluses which can be sold, unless the cost of production is low enough, and unless the prices the farmers receive are high enough—exceed cost of production—the business can not be profitable. So it is vitally important that farmers shall produce marketable surpluses and that they shall do it in the most economical manner. That is the production end of the farm business, which I have said is already largely developed, and all that Federal and State agencies can do is to make production more efficient and more economical.

They can do that by bringing about better utilization of the land, the use of better seed, the use of more productive varieties, by better methods of overcoming plant diseases and insect pests, by better methods of farm management, by more intelligent use of fertilizers, and by a far greater use of mechanical power on the farm.

The third factor in the determination of whether the farm business shall be profitable or not is prices. Cost of production does not determine the prices that farmers receive at any given time. Farm products will sell for only what they will bring in the open competitive market. They will bring only what buyers are willing or are compelled to pay.

That cost of production has nothing whatever to do with the prices farmers receive in a given year is shown by the fact that large crops frequently sell in the aggregate for less than small crops. And that fact hurts the farmers. They know that.

It has been done time and time again. If you will look in the Year-book of the department at the production of potatoes, year after year, and the farm prices of those potatoes, as I did the other day, you will note that in 1916 the potato crop amounted to about 286,000,000 bushels, and that it had a farm value of \$419,000,000. Now, that potato crop of 1916 has been exceeded 13 times; and in those 13 years of larger crops, in only 3 of them has the aggregate value equaled or exceeded the value of the small crop of 1916, and

those 3 years are the last 3—1917, 1918, and 1919, years of abnormal conditions and excessively high prices.

What does determine the prices farmers receive? It is the old law of supply and demand, which operates, like gravity, all the time and everywhere except as it may be temporarily suspended or interfered with by legislation, by monopolistic control, or by manipulation. We all know—it is elementary—that a large supply, in relation to demand, tends to depress the price, and that a small supply, in relation to demand, tends to raise the price. Now, just how that works out is very well illustrated by a formula of an old English economist named Gregory King, who lived in the seventeenth century, and his formula is almost as true, almost as applicable to present-day conditions, as it was to those of more than a century ago. Expressed on a percentage basis, it would be about like this: A 10 per cent change in the supply in relation to demand results in a 30 per cent change in the price, or as one to three. A 20 per cent change in supply in relation to demand results in an 80 per cent change in the price, or as one to four. A 30 per cent change in the supply in relation to demand results in a price change of 160 per cent, or as one to about five. A 40 per cent change in the supply in relation to demand results in a price change of 280 per cent, or as one to seven. A 50 per cent change results in a price change of 450 per cent, or as one to nine.

In other words, the price effect of a change in the relation of supply to demand is not in direct proportion; it is more like a geometrical progression; it is out of all proportion.

Now, which of those two factors, supply and demand, is variable and which is stable? The demand for agricultural products may be regarded as fairly constant. Per capita consumption does not vary perceptibly from one year to another. The total consumption tends to increase, and the demand tends to increase, with increasing population; but for all practical purposes the demand for agricultural products is fairly constant, one year with another. It is the supply that varies, and therefore the relative supply is the determining factor of prices, and prices are one of the determining factors in the profitableness of the farm business.

Mr. HUTCHINSON. Let me ask you a question. I would like to know what this has to do with the Bureau of Crop Estimates?

Mr. ESTABROOK. It has just this to do. The relative supply is the determining factor of prices which in turn determine whether the business is profitable. Now, it is the function of the Bureau of Crop Estimates to furnish accurate information with respect to relative supply.

Mr. HUTCHINSON. In respect to what?

Mr. ESTABROOK. With respect to present and prospective production and supply of all farm crops and live stock.

Mr. HUTCHINSON. How do you get at that?

Mr. ESTABROOK. If I might be permitted to complete this statement, I will then gladly explain—

Mr. HEFLIN. He asked at the beginning to be permitted to complete his statement without interruption.

Mr. ESTABROOK. I made brief reference, a while ago, to the enlarged program which the Bureau of Crop Estimates has prepared, and for which this increased appropriation is requested. Just what

kind of information does the bureau propose to furnish with respect to production and supply, and with respect to which it proposes to utilize the increase in appropriation?

With respect to crop production the bureau plans to furnish, for each State and for each county and for each recognized district of surplus production, estimates of the acreages which farmers intend to plant—and this for every crop; as to the progress of farm work, the progress of the planting, cultivating, and harvesting, and marketing, and with reference to the relative requirements and supply of seed, fertilizer, labor, insecticides, and fungicides; as to the acreages which are actually planted; as to the condition of the growing crops; as to the losses from diseases, from insects, and from adverse weather conditions; as to the acreage which is abandoned; forecasts of production; indicated yield per acre and total production.

For each of these crops the probable marketable surplus and the disposition or utilization of the remainder of the crop; the grade or quality of each crop, which largely determines its value; the amount of shrinkage and loss in storage; and the farm prices—all of these are items of information which are in constant demand by farmers and by every one who has anything to do with the buying or selling or handling of farm crops.

Now, all this information the bureau proposes to furnish with respect to each of about 70 crops, which includes about all crops that are grown, and which includes 10 crops which are not now reported upon, which have never been estimated quantitatively, and yet which have a value annually in excess of \$1,500,000,000.

There are several new features in this program of very great importance to farmers and business men. One is county estimates—data by counties. No class of information has been in more constant demand than estimates by counties. The county agents, for whom millions of dollars are expended annually, State extension services, State colleges, and departments of agriculture all need information on a county basis—

Mr. HUTCHINSON. Who knows more about it than the county agent does?

Mr. ESTABROOK. The county agent necessarily knows very little about the statistical side of agriculture in his county, although he may fully realize the need for such information. He is not a statistician, and has no training along that line, and it would be a waste of his time to make him devote it to that work.

Mr. HUTCHINSON. Can he not do it?

Mr. ESTABROOK. A few of them can do it, but not all.

Mr. HUTCHINSON. A few of them?

Mr. ESTABROOK. Yes.

Mr. HUTCHINSON. Can they not do it better than the men that you send around?

Mr. ESTABROOK. No, sir.

Mr. HUTCHINSON. I disagree with you on that.

Mr. ESTABROOK. It is not that those men are not qualified for it, necessarily, by training and experience, but they have other duties to perform which would be interfered with and rendered absolutely impossible if they undertook to do statistical work.

Mr. MCKINLEY. Is it not a fact that your bureau has been running long for a long time, and now the Bureau of Markets has taken

two-thirds of the work that you formerly did and the county agent has taken the other third?

Mr. ESTABROOK. Hardly. That is not a correct statement. These data, as I say, have been in constant demand for many years, and there is an increasing demand for them, and the information is needed by the county agents themselves. They have tried time and time again to get it, and they have failed each time.

Mr. MCKINLEY. Why have they been unable to get it?

Mr. ESTABROOK. Because most of them are not qualified by training and experience, because they were employed for an entirely different purpose, and because they had other work to perform. We can get these statistics, and we can get them for one-tenth of the cost for which they can be gotten in any other way or by any other existing organization.

Mr. MCKINLEY. From whom do you get them?

Mr. ESTABROOK. From the farmers themselves. Besides our trained field agents and crop specialists we have more than 215,000 voluntary reporters, most of whom are farmers.

Mr. MCKINLEY. Does a farmer know more than a county agent about what is going on?

Mr. ESTABROOK. He knows precisely what is going on on his own farm, and in his immediate neighborhood. You do not have to examine every grain in a carload of wheat, corn, or oats in order to get the weight or determine the grade. If you take samples you can get it in that way. That is the theory upon which this crop estimating work is done. We have the judgment of trained field agents, and crop specialists who go through every county personally observing conditions during the growing season, who interview the best-informed men in each country, and who get the best-informed men in each county to report to them; and we get the stability which comes from the use of large numbers. If you have a sufficiently large number of farmers reporting for every county, farmers who are representative of the farms which surround them, by the law of averages their estimates will balance, the over estimates will balance or offset the under estimates, and the resulting averages will be approximately correct. That has been proved thousands of times. The question of accuracy will come up later, and I will be glad to discuss it; but these county estimates are of great practical value to the county agents, to the farmers, to leaders of the State extension services, the State agricultural colleges, to all marketing and distributing agencies, as well as to merchants and business men of every description. The transportation lines need information by counties in order to provide in advance sufficient rolling stock to move the surplus crops and to know when and where to send cars and how many of them to send, which is a service of great value to farmers and to all marketing agencies.

Mr. MCKINLEY. Is not that what the \$900,000 for your bureau or the \$3,000,000 appropriated for the Bureau of Markets is used for?

Mr. ESTABROOK. No, sir.

Mr. MCKINLEY. What is it used for?

Mr. ESTABROOK. The Bureau of Markets deals with the marketing end of the business; it specializes on marketing, just as the Bureau of Crop Estimates specializes on ascertaining and verifying the statistics of farm production and supply, without which the

Bureau of Markets can not function properly or effectively or economically.

Mr. MCKINLEY. What is that about but moving crops and cars.

Mr. ESTABROOK. The Bureau of Markets can not deal intelligently with respect to marketing the crops and live stock of the United States until they know how much is to be marketed and from where it is to be moved, and that it is the function of the Bureau of Crop Estimates to tell them. That is what our organization is for. That is why it has been developed through more than half a century of experience. If the Bureau of Markets undertook to do that on its own account it would have to duplicate the organization and methods of the Bureau of Crop Estimates to do it and double up on every expense. At present they have not the necessary experience. They could get it, of course, but it would take several years for them to get it, and in the meantime it would be rather expensive to duplicate the experience of this bureau.

The next new item of information, in addition to shifting from a State to a county basis, is estimating the marketable surplus production on farms of each of these 70 crops. The marketable surplus production is the part of the crop which is sold from the farm and shipped out of the county where it is grown, enters the channels of trade, and becomes a part of the visible supply; the part of the crop which concerns all marketing and distributing agencies; the part in which consumers are interested, and it is the part of the crop which largely determines the farm price.

A large part of the criticism which has been directed against the Bureau of Crop Estimates in former years is due to the simple fact that the estimates relate to total production, of which considerably more than 50 per cent—perhaps 75 per cent—of the total production is consumed on the farm or in the counties where grown. It does not move in the channels of trade, and you can not check it except in the most general way. When the bureau estimates marketable surplus production by counties, it will be possible to put your finger right on the locality, and you can check it against shipments. The Bureau of Markets will then know where the supplies are coming from, and the transportation companies will be able to estimate exactly the number of cars needed to move these crops; and that in itself is a great service to the farmers, as you gentlemen must realize from what has happened in the last 12 months. Great losses are sustained when cars are not available to enable farmers to move their crops, or their fat cattle when in condition to ship.

Mr. ANDERSON. That was not due to the fact that they did not know when to get the cars there but to the fact that they did not have the cars.

Mr. ESTABROOK. During the last few months?

Mr. ANDERSON. Yes.

Mr. ESTABROOK. During the last three or four years it has been largely due to the fact that cars were not available; but in normal times, during peace times, when cars are available, it is quite important that the railway lines should have this information. They are spending thousands of dollars to get that very information; perhaps as much as the Bureau of Crop Estimates is spending to get it.

Mr. HUTCHINSON. How often will you make these reports?

Mr. ESTABROOK. Monthly. Thirdly, the next new item of information relates to the intention of farmers to plant before the planting season begins. Now, of what use is that information? It is information which will be worth thousands and thousands of dollars to the farmers of this country, because if it appears that too much or too little acreage of a particular crop is going into the ground the farmers want to know that before it actually goes into the ground in order that they may modify their plans and make proper adjustments. It is entirely feasible. The bureau did it for two years during the war for the information of the Secretary and the administrative officials of the department; and those estimates checked up to within 1 or 2 per cent of the final estimates.

Next, estimates by varieties. It is highly important to show the relative productivity of different varieties of a crop. It is information that would be very valuable to every farmer, and it is information they are entitled to have.

Grade or quality is of very great importance some years. We all know that in some years of large production, because of adverse weather conditions before or at the time of harvest or shortly thereafter, the quality—the merchantable quality, the value—of some crops has greatly deteriorated. It has happened this year with the cotton crop. It happened a year or so ago with the corn crop, and a few years ago it happened with the wheat crop; and the bureau was severely criticised for not reporting the quality and the extent of damage; and we propose to do that in future if sufficient funds are provided.

Abandoned acreage is an item of information which is valuable in some years. It was important this last year with regard to cotton. It has been reported in the past only with respect to winter wheat. For other crops the bureau in the past has made allowance for abandoned acreage by showing a smaller average yield on the entire acreage planted. But that is not sufficient.

It would be far more satisfactory to show the acreage planted, the acreage abandoned, and the correct average yield on the acreage actually harvested. But without the necessary funds and facilities, we can not do these things.

Shrinkage and loss in storage is quite an important matter. It relates directly to the supply, which is the price-determining factor. For such a crop as potatoes, shrinkage or loss after harvest and while in storage is quite considerable in the aggregate, and should be known. And so with some other perishable products.

Information with respect to the requirements and supply of seeds and of fertilizers, of farm labor, insecticides and fungicides, is of value to the farmers of the country, because those are essential factors in crop production; and while such information does not add to the supply, it does show where the supply is located; it brings about a better and more equal distribution; it tends to equalize prices; and it is information that should be available.

Now, with respect to live stock—and this branch of our program is perhaps the most important part of it, because no feature of the work of the Bureau of Crop Estimates is less satisfactory, less valuable, or more faulty, than the live-stock reports of the bureau, and no one knows it better than the bureau itself. Here is an

industry which represents a farm value in excess of \$10,000,000,000; it represents the present and future meat supply of the entire population; it represents a long-time industry which takes several years to bring about necessary adjustments; it is an industry which contributes very considerably to our export trade; it is an industry which represents more than 50 per cent in value of all sales from farms; it is an important factor in economical farm management, the utilization of forage, roughage, and waste products, and in the maintenance of soil fertility—a most essential factor of profitable farming—and yet for this great industry, amounting to more than \$10,000,000,000—and there are few industries in the United States which equal it—the Bureau of Crop Estimates has available less than \$25,000. Gentlemen, it is absurd. Twenty-five thousand dollars in each State would not be too much, when you consider the size of the industry and its importance and its value; an industry concerning which you can not find any statistics of value between census years except the meager information which the Bureau of Crop Estimates has attempted to supply one a year; once a year the total numbers; once a year the number of brood sows; once a year the total losses.

The bureau has never attempted—has never been in a position to attempt—to estimate dairy or poultry production, two items which together have an annual value in excess of \$3,000,000,000. And the Bureau of Crop Estimates has less than \$25,000 with which to do that work. Is there a corporation in the United States with a business of one-tenth of that amount that would not spend more money than that on its bookkeeping?

What does the bureau propose to do with the increased appropriation for the great live-stock industry? It proposes to show for the United States, for each State and for each county, monthly or as often as may be necessary, the number of horses, mules, dairy cows, beef cattle, swine, sheep, goats, and poultry; and in January of each year to show the number of each kind by sex and by age classifications corresponding to those of the census, that is, the number of each sex below 1 year of age, from 1 to 2 and from 2 to 3 years, and so on; and the number of pure-bred animals of each kind; so that we may know the breeding strength and quality of the live stock of this country; and monthly thereafter to show the changes in number that take place, how many animals are bred, how many are born, how many are purchased or brought onto the farm, how many are sold, how many are slaughtered, and how many are lost from disease or various causes; and the net number of each kind of animal remaining on the farms.

Mr. JACOWAY. I wish you would permit me to ask you just one question there. I will make it short.

Mr. ESTABROOK. Yes.

Mr. JACOWAY. It has been argued for years that the sort of information you gather, put in the hands of these monopolistic organizations that you speak of, gives them an advantage, whereas the people who pay for it all do not get the benefit of that. Is that true?

Mr. ESTABROOK. There has been some foundation in the past for that general belief because members of exchanges and boards of trade, speculators, and representatives of combined interests were

in a position to make quick use of the information, while individual and isolated farmers could not; but as I see it, the farmers' organizations are going to remedy that situation. They are appointing capable leaders and employing competent business managers, and those men are utilizing that information and passing it out to their members, so that the farmers can use it just as well as the speculators, the packers, or other combined interests. Without the unbiased and dependable Government crop reports producers would be at the mercy of the buyers, speculators, and big concerns, who have their own agencies for collecting information, and who would then be free to issue false or misleading reports to serve their own special interest.

Then we want to show the number of animals on feed; the condition of live stock, monthly; the whole feed and forage situation, present and prospective; number of silos and the quantity of silage; condition and carrying capacity of meadows, pastures, and ranges; because the feed situation is highly important with respect to the live-stock industry. It becomes very important in years of deficient moisture and continued drought over large areas in the West, when it becomes necessary to move live stock out, or to ship in feed in order to save them. The bureau proposes to make forecasts for live stock just as it does for crops; forecasts of swine production and sheep production, and forecasts of dairy production, meat production, poultry production, hide production, and wool production. It can be done with a high degree of accuracy; and, of course, the bureau will report on prices received by growers.

Mr. PURNELL. What work is being done by the individual States along that line, if anything?

Mr. ESTABROOK. No State is attempting to do what we have outlined in our enlarged program. Many States are doing more or less crop and live-stock reporting. Perhaps half a dozen States have been attempting to do crop-reporting work in recent years. During the last two years the bureau has entered into cooperation with 15 out of the 48 States to issue cooperative State crop reports, combining all our resources in order to eliminate the duplication of effort and unnecessary expense and to improve the service in those States; so that we can say that 15 States now have this cooperative system. That includes all the great corn-belt States except Kansas. Kansas is one State which still has its own independent crop-reporting system, although even in Kansas there is close cooperation with the Bureau of Crop Estimates.

Mr. RUBEY. A few days ago I received from the secretary of the State department of agriculture of Missouri a complete statement giving the estimates of the various crops raised in the State in 1919—wheat, corn, oats, all sorts of grains, live stock, and hogs—a detailed statement. Does your department assist him in getting up that estimate, or did he get that up through a Missouri organization?

Mr. ESTABROOK. That was done by the Bureau of Crop Estimates, through its field agent. A little more than a year ago we entered into a formal cooperation with the State department of agriculture in Missouri. Their own system was discontinued and our system was taken up. They gave us office space and clerical assistance. Our field agent took charge of the organization and has developed

the work, and it is proving highly satisfactory not only in Missouri but in all States with which we are cooperating in the same way.

Mr. RUBEX. That work, then, is the result of your organization?

Mr. ESTABROOK. Yes; our officers work in cooperation with the State officials. We combined our resources and facilities with those of the State. That is one State where county estimates were possible, because more data were available there than in many States in which the State department of agriculture had done no work along that line.

Mr. HUTCHINSON. Do I understand you that that was for 1919, Mr. Rubey?

Mr. RUBEX. Those figures were for 1919. It was an estimate of what had been raised in Missouri during the year ended December 31, 1919.

Mr. HUTCHINSON. It must have been an estimate.

Mr. ESTABROOK. They were absolute estimates, you know.

Mr. RUBEX. You know and I know that they could not tell absolutely how many bushels of wheat were raised at that time.

Mr. HUTCHINSON. It was a thing of the past, was it not?

Mr. RUBEX. No; it was issued in December, for the year 1919, and the year 1919 did not close until the 31st of December.

Mr. ESTABROOK. This map which I have here shows the 15 States in which such cooperation is now in force.

The next most important subdivision of our program is with reference to foreign crop and live-stock production. Great interest has developed since the World War, among farmers and business men, in the foreign situation. They have now come to realize that the law of supply and demand is not limited to any particular county or State, or even to the United States. It is world-wide and the prices of some American products are greatly influenced, if not determined, by the foreign situation. It is proposed to issue all obtainable information with respect to acreage and production of foreign crops and live stock, especially for countries of surplus production, in competition with the farm products of the United States, and to prepare regularly, perhaps quarterly, world balance sheets showing per capita consumption and requirements of each country, acreage, production, surpluses and deficits, net imports and exports, and the world balances, whether it be a shortage or a surplus.

Mr. McKINLEY. Is not that contained in the communications of the International Institute of Agriculture at Rome, Italy?

Mr. ESTABROOK. The International Institute of Agriculture at Rome, Italy, does some such work as that, but, like many institutions of the kind, it is rather cumbersome; it does not act quickly enough for American farmers. It does not get all the information. It gets only such official information as the adhering countries or members of the institute may furnish.

Mr. McKINLEY. Then we are wasting our money in making appropriations for that purpose?

Mr. ESTABROOK. Not necessarily; the information they supply is of value, and the institution itself is doing good work in bringing about better organization in many foreign countries for obtaining statistical information. It is only those who have to deal with the statistics of agriculture in foreign countries who have any conception

of how absolutely unreliable some of them are. The mere fact that they are published in the form of figures does not mean much, and it is necessary—

Mr. McKINLEY. How do you get that?

Mr. ESTABROOK. And it is necessary to bring together information from all sorts of sources.

Mr. McKINLEY. How do you get that information?

Mr. ESTABROOK. We get information not only direct from the International Institute of Agriculture—the Bureau of Crop Estimates is the official channel of communication with the institute—but we get directly from all Governments their published statistical reports. We have in our bureau—

Mr. McKINLEY. You say that that is likely not to be correct?

Mr. ESTABROOK. Yes; that is true. We have to know the degree of correctness, so far as we can ascertain it, and we get all of those reports; but those reports are very slow in being issued; very slow in being printed. They are historical, mainly, when they reach here.

As a matter of fact, the United States Government could very well afford to place competent representatives of the Bureau of Crop Estimates in every country of surplus production, to ascertain at first hand the changes that are taking place in regard to crops and live-stock production there which is in competition with the products of the United States and that is a field for development in future. We have not asked for that in our present estimates of appropriation. We think it is more important this year first to develop the system right in our own country; but, unquestionably, that is what we should have. That is what an \$80,000,000,000 industry is entitled to have—competent and well trained men in Canada, Australia, Argentina, India, and Russia, watching what is taking place, sending by wireless, by telegraph, immediate information, so that the American farmers and business men shall have the benefit of that information which is often of vital importance in their business.

Mr. HUTCHINSON. Would the speculators have any advantage of it?

Mr. ESTABROOK. Surely they would.

Mr. HUTCHINSON. Would not they have more advantage than anybody else?

Mr. ESTABROOK. Not necessarily. When these farm organizations are fully developed, as they are developing now; when they get men just as bright and just as competent as any speculator; when that information goes in—

Mr. LEE. Very often the speculator has the information anyway, and the farmer has not.

Mr. ESTABROOK. Yes; the speculator profits only by the fact that the farmers have not the information that he has; that he has it and the other people have not got it; and it is the business of the United States Government to see that the farmers have the information as quickly and as accurately as the speculators. They are entitled to it.

Mr. McKINLEY. I heard Jim Patten, the greatest wheat speculator in the United States, make the statement before the committee the other day that your estimates were not any good; that he never pretended to depend on them.

Mr. ESTABROOK. It is frequently to the interest of speculators of the United States to discredit the reports of the Bureau of Crop Estimates. Nothing pleases them more than to have anyone question the accuracy of those estimates. And I will say this, gentlemen, that since my connection with this bureau there has been only one important or influential request that a crop report be suppressed. It came from the officials of the greatest exchange in the United States. It came in the spring of 1917, when the greatest disaster which ever overtook the wheat crop had taken place, when over 12,000,000 acres of the winter wheat was abandoned, and the speculators knew that, and they had, in all probability, sold to the Allies far more wheat than was in existence, and it would have been worth millions of dollars to them probably if they could have suppressed the Government's crop report showing the facts; but no attention was paid to that demand, which came by telegram. And so, of all men, the speculator is the one man who would like to have the Government crop reports suppressed or discredited. Speculation thrives upon, it has its very foundation in, uncertainty; and the very best curb upon speculation is an accurate, dependable, unbiased, authoritative set of data with respect to supply, and pitiless publicity. It will do far more than any law you can pass.

Mr. HUTCHINSON. Do you remember your estimate of the spring wheat crop last July?

Mr. ESTABROOK. I do not recall it. I do not attempt to carry in my head the details of all the estimates monthly for over 60 crops and 8 classes of live stock, any more than the accountant or the statistician for a large corporation would attempt to carry in his mind the details of those accounts.

Mr. HUTCHINSON. Are your estimates always of the same correctness that that was?

Mr. ESTABROOK. The estimates are all made in accordance with the same system. They are all comparable, and the data is all on file in the bureau, and it will be gladly furnished if you desire it.

Mr. HUTCHINSON. What I am trying to get at is whether your estimates are always as near to the facts as your crop estimate of last July?

Mr. ESTABROOK. The estimates check out very accurately whenever we have dependable data with which to check them, which is the case with only a few crops.

Mr. HUTCHINSON. Do you not have dependable checks at the end of the season?

Mr. ESTABROOK. No, sir; not dependable checks. Dependable checks are not always available, contrary to the general belief.

Mr. MCKINLEY. Do you not believe you would get them if you had more confidence in the county agents?

Mr. ESTABROOK. No, sir; it has been tried repeatedly and demonstrated that county agents can not be relied upon for them.

Mr. MCKINLEY. The county agents in many cases have been in the service more than three years.

Mr. ESTABROOK. In many places they have been employed more than three years.

Mr. MCKINLEY. I was thinking about down in Alabama.

Mr. HUTCHINSON. The county agents are on the ground all the time?

Mr. ESTABROOK. Yes.

Mr. HUTCHINSON. Your people only get around once a month or once year?

Mr. ESTABROOK. The farmers—215,000 of them—who report to the Bureau of Crop Estimates, are on their farms all the time, and know what is taking place on their farms, and know a good deal about what is taking place on their neighbors' farms.

The CHAIRMAN. Do you claim that the county agents know nothing about what is taking place on the farms?

Mr. ESTABROOK. No, sir; I would say that the county agent is regarded as perhaps the best source of certain kinds of information in his county. The county agent knows methods of cultivation, methods of handling seeds, fertilizers, and best methods of cultivating, harvesting, and marketing crops; in other words, the best methods of farm management, which the experience of the best farmers and the investigations of the Federal Department of Agriculture and the State colleges of agriculture and experiment stations have shown to be the most successful. He does not necessarily know about statistics.

The CHAIRMAN. What are the functions of these men?

Mr. ESTABROOK. County agents furnish most valuable information to the Bureau of Crop Estimates.

The CHAIRMAN. I have heard them lecture on the quality of corn, on how to select seed corn; yet you say they do not know anything about crops.

Mr. ESTABROOK. But that has nothing to do with the statistical side of crop production in the county. A man should know all about it to try to—

The CHAIRMAN. They could not estimate whether the crop was 20 bushels or 50 bushels or 100 bushels?

Mr. ESTABROOK. I might make this clear to you gentlemen: We have had more experience than anybody else with county agents with reference to crop estimates. I am talking about the statistical side of the question. Now, theoretically the county agent is the best man in the county—the best qualified to supply crop estimates. Everybody thinks that, everybody believes it, who has not been up against the practical end of it, which is something quite different from the theory. The bureau has tried it out repeatedly. What was the result? The estimates were uniformly too high. Why? Because the county agent, to be a successful county agent, has got to be an enthusiast. He has got to be an optimist. He is not worth his salt if he is not. He can not induce other men to adopt other and better practices and methods unless he really believes that certain methods are going to give the greatest production and the most profitable results. That is what he is paid for. That is what he is thinking about. That is his mental attitude, and, besides, he is dealing with the more progressive farmers in his community. He sees the best crops in his community. And when you ask him "Has the acreage of this, that, and the other crop been increased?" or "Is there more live stock on the farm this year than last year?" he will say "Yes," of course. So that statistically the county agent is not the best source of information.

Mr. McKINLEY. Do you not think that a county agent, continually impressed by the farms of his county in riding around over the county as he does, would know more and have more accurate information than you would get in 10 reports from 10 of these farmers in the county?

Mr. ESTABROOK. If he is the right sort of man, yes; far more, but not all of them are the right sort of men—close observers and statistically inclined. It is the business of our field agents in the States to become acquainted with each of those county agents, and to know from which of them helpful statistical information can be secured; and they do know that. We utilize them so far as it is practicable to utilize them to advantage.

Mr. HUTCHINSON. Do you pay the farmers for the information you get from them?

Mr. ESTABROOK. No, sir.

Mr. HUTCHINSON. I see that in this appropriation you ask for \$225,000 for traveling expenses.

Mr. ESTABROOK. Yes.

Mr. HUTCHINSON. Do you not think that the county agents can go to those farmers and get information just the same as you can by sending a man out in that way?

Mr. ESTABROOK. No, sir, I do not; but I will be glad to discuss this question when we come to the individual items of the appropriation estimates.

The CHAIRMAN. I should think that the county agents would be chosen for that work.

Mr. ESTABROOK. My statement, Mr. Chairman, is not to the effect that they do not know about crops. They do, decidedly.

The CHAIRMAN. The county agent is an expert. He goes into the field and counts the rows of corn; he is an expert on that line. If you want expert information, you would naturally go to the county agent. They are experts, and they are excellent men.

Mr. ESTABROOK. If the department will turn over the entire force of county agents to the Bureau of Crop Estimates we will train them in our work and utilize them to splendid advantage.

The CHAIRMAN. A half an hour a day so far as that is concerned would take care of that proposition. A stenographer could attend to sending out these reports with the assistance of the county agents—you would have some information that would be of value. You have just criticized your service, but you have not pointed out how you are going to improve it, except that you are asking for more money so that you can send more agents into the field to get information that, according to the information we have before the committee, is now being gotten by the county agents.

Mr. ESTABROOK. The bureau does and will utilize the county agents so far as they are available for that purpose.

The CHAIRMAN. If they are made available, you would not need any additional force, would you?

Mr. ESTABROOK. Yes; certainly additional funds would be needed. No class of men, no matter how well qualified, can work efficiently and economically on a uniform basis except under proper instruction and supervision, and a large increase in clerical force would be required to tabulate and summarize results.

The CHAIRMAN. Do you think they could devote their services to any better advantage than to furnish that information?

Mr. ESTABROOK. I think so. I think the county agents form a channel of communication between the Department of Agriculture and the State colleges and experiment stations and the individual farmers and farm bureaus. They bring directly home to the farmer the results of all the investigations which are carried on by trained specialists of the Federal Department of Agriculture and the State colleges of agriculture and experiment stations, where many millions of dollars that Congress and the State legislatures appropriate annually are spent.

Mr. JACOWAY. Is not this your proposition: That the county agent can not discharge the duties of a county agent and at the same time perform the duties of a statistician?

Mr. ESTABROOK. Absolutely. He has his hands full with something else, he is trained for something else, and he is employed and paid for something else.

Mr. MCKINLEY. Is it not a fact that these county agents on the average are paid twice as much as your field investigators, and would it not stand to reason that they would know twice as much?

Mr. ESTABROOK. No, sir; not necessarily. Our field agents should be paid more, but unfortunately they are not. I think county agents earn every dollar they get, but because some of them earn larger salaries than others does not imply they know more—it indicates that the farmers who agree to pay the higher salaries are better business men than in some other counties.

The CHAIRMAN. Your office could compile the statistics if the agents could furnish them. They would devote their time to it as well as these farmers who work for nothing. You can not expect the farmer to go out and make a general survey when you have never paid him a cent and do not intend to pay him, although he may be just as intelligent and just as much of an expert on crops. These agents, with experience and college education and training, are naturally expected to know a little more about the general situation than any one man who is confining his activity to his own farm and its vicinity. You can not expect the farmer to run all over the county in his automobile to inspect crops and make reports on them. It is the business of the county agent to get information.

Mr. ESTABROOK. Probably it would be possible to utilize all the time of the county agents, if Congress is willing to direct that all the time of the county agents shall be devoted to getting this information. It is impossible for them to furnish all the data required without seriously interfering with their present duties.

Mr. RUBEY. Mr. Chairman, may I just make this statement: I have been listening to these hearings ever since they commenced, and I have been wondering what sort of a man a county agent would have to be to do everything and accomplish everything that would be required of him if he were called upon to do the various duties concerning which different witnesses before this committee are asked "Can not the county agents do that?" There has hardly been a man before this committee upon any proposition who has not been asked somewhere during his testimony "Can not the county agent do this and that and the other?" You would have to increase his time and

give him 48 hours a day, instead of 24, and let him work all the time, in order that he might do all those things.

This gentleman here says that a county agent could become a statistician; that a county agent could make a report of all the crops of the county. And he could, provided he gave his entire time to that. I take it, however, that a county agent who goes out over the county, day in and day out, is not going out for the purpose of getting an estimate of a crop but to do all he can to encourage production, to get men to farm better, to diversify their crops, and to do this and that and the other; he does not go out for the purpose of making an estimate of how many sheep are raised on every farm in every township in his county. So I take it that if we keep on and put all these duties on the county agent, we had just as well abolish the Department of Agriculture and turn it all over to him.

The CHAIRMAN. It is true that that question has been asked. We have been trying to find out whether the county agents could possibly handle some of these activities. I know what they are doing in the country, of course.

Mr. RUBEY. You know what they are doing and I know what they are doing in the counties. I do not know that it is necessary to put into the record here what the county agents are doing. We will get to that, possibly, before these hearings are over, because we get something from everybody.

The CHAIRMAN. We find that they send three or four employees at the same time into a county that has a county agent to duplicate work. Upon investigation we find we have two or three other men from some other bureau or bureaus traveling in the same county, sometimes duplicating the service. I know of one case where three offered their services on a proposition. I am trying to find out something about this duplication of work. We have this machinery, and now we are asked to provide more machinery. We are told that what we have is not sufficient to handle the simple proposition that the farmers do without any compensation.

Of course, if they are going on as they have gone in the past, gathering information that department has admitted is inadequate, we had better discard the whole thing. If you want to furnish real information, then get an expert on the work. You do not propose to send out trained men. You have not got them. What you need is an expert; and the county agent is an expert.

Mr. EASTABROOK. We propose to employ experts, crop specialists and field agents who are also statisticians. That is a part of the estimate that comes under the items we propose.

The CHAIRMAN. Statisticians?

Mr. EASTABROOK. Not necessarily.

Mr. HARRISON. Trained agriculturists; we have them now.

The CHAIRMAN. Are not your county agents trained agriculturists?

Mr. HARRISON. Of course they are.

Mr. EASTABROOK. I can not speak authoritatively of the county agents. They form no part of the Bureau of Crop Estimates. They come under the State's Relations Service and full information concerning them can be obtained from representatives of that service when they appear before this committee.

The CHAIRMAN. Does your bureau cooperate with others bureaus in the department?

Mr. EASTABROOK. We do, so far as we can.

The CHAIRMAN. You say you do. What is your cooperation?

Mr. ESTABROOK. We cooperate in this way: Our State field agent, the trained, experienced man, who, before he can get a position at all, must have had five years' practical experience in farming, who also has his agricultural college education, and who at the present time has had three to five years' practical experience in the statistical end of crop reporting, travels over his State, and probably one of the first men he goes to in each county is the county agent. If the county agent is at all statistically inclined, if he is a good observer, if he really knows about his crops as he ought to know them, our field agent gets orally full information from him. It is said in the States Relations Service that the county agent has not the time to fill out written reports. Our agent gets them orally from the county agents, and in that way visits them all and gets the benefit of their first-hand knowledge.

He also obtains from the county agent information as to who are the best-informed and most intelligent farmers in this, that, and the other part of the county. He gets the names and addresses of these farmers, and just where they live, and then he goes to see some of these men and gets some of them to agree to report monthly to him, so that if he is unable to get into that county every month during his absence he will have a report showing what changes have taken place in crop production. In that way we are utilizing the county agents so far as they can be utilized.

The CHAIRMAN. The county agent travels about every day, while these men of yours get around only once a month.

Mr. ESTABROOK. Our men get around, of course, perhaps once a month or once in three months only in a particular county; but after one of those men has been around and then comes back after a month and does that month after month and year after year, he knows how that crop ought to look by the month of June or the month of July or the month of August. He knows whether it is better or worse this year than it was last year or the year before. He becomes personally a trained judge of crop conditions; and then he utilizes the best men he can find in the county and takes their reports.

The CHAIRMAN. Is it not a fact that the county agent goes all over the country; he is on the go every day; he gets into every place in the county in covering his county? Of course, the county agent would not drive over the county without observing the condition of the crops. He could not do it. That is his whole interest. He is the best informed and the most capable of passing upon the condition of the crops.

Mr. RUBY. I take it that the county agent is the man who would probably be the very best man in the county to give you a statement along generalities, as to the condition of the crops over the county; but that is an entirely different thing from giving a detailed statement of how many acres of corn and how many acres of wheat, and this, that, and the other crop, is all over the county, and its condition, and all that sort of thing. I take it that the county agent is a very valuable man to get information from a general standpoint; but

when it comes right down to the details, he could not give that information unless he devoted his entire time to it.

Mr. JONES. Then, how could the Federal agent get it in one day?

Mr. McLAUGHLIN of Nebraska. He does not get it in one day. Is it not a fact that the expert does, in many instances, get his information from the county agent and from him only?

Mr. RUBEY. As a rule he does get information from him; but this department, as I take it, has four or five of these men in each county, each of whom gives an estimate of the condition in his immediate neighborhood, and then he takes those statements, and the general statement of all those statements together, and makes out his estimate of what may be raised in that county.

Mr. JONES. Do you mean to say that the county agent could not take those reports that he gets from those five or six men and make a fairly respectable report to the department?

Mr. RUBEY. If he was required to make the estimate from those reports, he could; but in the meantime he would be neglecting a whole lot of things that he ought to be doing.

Mr. JONES. Not if the Federal agent takes the same time that it is said it takes him to do it.

Mr. McKINLEY. If you get the amount asked for, how many field investigators would you have in Iowa?

Mr. ESTABROOK. If you will excuse me, that is a part of the details of the estimate itself, and I would very much prefer not to take that up in my preliminary statement, but to do so when I get to it, item by item, if the committee will permit me to proceed. I had said that this enlarged program included a very largely increased crop reporting system, a greatly enlarged live-stock reporting system, and an improved system of foreign crop and live-stock reporting.

There is another thing I want to mention in this connection: The bureau already has what is said to be the most complete collection in the world of statistics relating to agriculture. It has a vast amount of information of great practical value which is not available to the public simply because the bureau has not a few competent statistically trained men to go through that material, to select out the essential portions of it, and to shift the wheat from the chaff and present the results in readily understandable form to the public.

The last subdivision of our program relates to the more complete summarization, analysis, interpretation, and presentation of agricultural statistics, not only accurate and complete data in tabular form, but brief text summaries and full illustrations by means of maps, graphs and diagrams.

This matter of presentation is highly important. Those statistics should be illustrated by maps and diagrams so that the essential facts will be presented in striking form, and can be readily understood, and so that they will economize the time of all those who have occasion to use them.

Now, the next question which logically follows is, who will benefit from the expanded and improved service which the bureau proposes to render with this increase?

Mr. HUTCHINSON. Mr. Moon is here to make his statement. Will you require all the afternoon?

Mr. ESTABROOK. At the progress I am making it is going to take several hours.

The CHAIRMAN. It will probably take all the afternoon?

Mr. ESTABROOK. Yes, sir.

Mr. JONES. This is your general statement.

Mr. ESTABROOK. My general statement regarding the essential reasons why the crop and live-stock reporting service of the Bureau of Crop Estimates should be expanded and improved and why additional funds should be provided by this Congress for the next fiscal year.

The CHAIRMAN. Will the committee hear Mr. Moon to-morrow?

Mr. RUBEY. What is Mr. Moon to appear about?

The CHAIRMAN. In the interests of nursery stock. Without objection, it is understood that we will hear Mr. Moon after Mr. Estabrook completes his statement.

Mr. RUBEY. Make it to-morrow; then he will not have to wait all the afternoon.

The CHAIRMAN. We will hear you to-morrow, Mr. Moon.

Mr. ESTABROOK. Who will benefit from this proposed expanded and improved service?

First of all the farmers of the United States, and there are probably 14,000,000 of them, 14,000,000 adult male voters, and most of them taxpayers. Every one of them is interested in making his private business of farming a profitable business, and the information which the Bureau of Crop Estimates supplies and proposes to supply has a direct bearing on his individual business. Those 14,000,000 farmers have a capital investment, as I said before, worth over \$80,000,000,000, and their annual output has a value in excess of \$20,000,000,000. It will be hard to pass any legislation which will benefit a number of men at all comparable with the number of farmers in these United States. They will benefit from this information practically and financially, individually and collectively, and they are entitled to this service which the Bureau of Crop Estimates proposes to render.

Next, the farming organizations which are developing absolutely must have this kind of information. They will get it either from the Bureau of Crop Estimates or they will attempt to get it on their own account, and the moment that they attempt to get it on their own account, it will cost them and it will cost the farmers ten-times the proposed cost of this improved service.

The CHAIRMAN. Have these organizations of which you speak made any request for this service?

Mr. ESTABROOK. The National Federation of Farm Bureaus, which was formed in Chicago last November, passed a resolution recommending to Congress the principle that adequate appropriations should be supplied to the Bureau of Crop Estimates. The Federation of Farm Bureaus in the State of Iowa is strongly in favor of giving adequate support to the Bureau of Crop Estimates. The Federation of Farm Bureaus of the State of Illinois in the same manner has indorsed this proposition.

The CHAIRMAN. Our trouble has been in explaining to the farmers why we spend so much money. I do not know whether they want this appropriation increased or decreased.

Mr. ESTABROOK. It is assumed, Mr. Chairman, that in reducing the expenses of the Government, something which ought to be done, it is a policy which we all favor, it is the right thing to do, but in doing

it is assumed that you business men on this committee will use the same discretion, the same discrimination, and the same business sense that you would use in your own private business in bringing about that reduction. Now, if it was your business in which you were trying to cut down expenses, or the business of any other member of this committee, what would you do? You would cut out the least profitable portions of your business. You would cut out the portions of the business which were resulting in a loss, and if there was a part of your business that was highly profitable, promising larger returns than any other branch of it, you would not hesitate to increase the investment in that particular branch.

Mr. McLAUGHLIN of Nebraska. What particular branch of the Department of Agriculture would you recommend cutting down?

Mr. ESTABROOK. That is for the committee to determine. It would be highly embarrassing for me to express any opinion. But I think the committee right here just for a moment might consider what parts of the Department of Agriculture are most directly related to the business end of farming—markets, crop estimates, farm management. The remainder of the department is doing splendid work in connection with the production end of agriculture and regulatory work of the department, but in the Department of Agriculture these three bureaus—the Bureau of Markets, with its great undeveloped field, its wonderful opportunity for service, for serving the farmers in a financial way; the Bureau of Crop Estimates, which supplies the essential facts of production and supply which the Bureau of Markets must have before it can function properly and effectively; and the Office of Farm Management, which specializes on the farm business as a business just as efficiency experts specialize on other lines of business, the branch of the department which is directly concerned in cost of production studies and in the planning and arranging of the farm business on the most profitable basis—those three branches of the Department of Agriculture are directly concerned with the business end of farming.

These organizations that I have spoken of as developing so rapidly in the corn-belt States are all business organizations. They are not social organizations at all. They are organized for business, to make the business of farming profitable, and that is why in their first annual convention, when they organized, among the first resolutions they passed was one recommending the securing of adequate appropriations for those three branches of the Department of Agriculture, Markets, Crops Estimates, and Farm Management. Now that is not a direct answer to the question the gentleman asked, but it throws light on it.

So in answering this other question, who will benefit from this improved service? I say, first of all, the 14,000,000 farmers of the United States; secondly, their great organizations which are developing and just preparing to get busy. Next the Federal Department of Agriculture.

The CHAIRMAN. How do you figure that there are 14,000,000 farmers? Are there not only 7,000,000?

Mr. ESTABROOK. In this way, Mr. Chairman. There are now about 7,000,000 farms, about 7,000,000 farm owners, and the farm helpers number about 7,000,000 in addition. That was about the proportion

of the last census, six and one-third million farm owners and six and one-third million farm hands.

The CHAIRMAN. You include the farm hands?

Mr. ESTABROOK. Yes. It seems to be the consensus of opinion that there are about 7,000,000 farms now.

After farmers and their organizations comes the Federal Department of Agriculture, for which more than \$33,000,000 are expended annually. That department in the formulation of constructive programs and policies, in laying out its work intelligently, relies and must rely very largely upon the statistical data collected and supplied by the Bureau of Crop Estimates. That statement applies to practically every branch of the Department of Agriculture. Some of them do not realize it. Some do.

Mr. HUTCHINSON. You say that with crop estimates a man would lay out his plans for 1920. Is he taking last year's estimate?

Mr. ESTABROOK. No; not altogether.

Mr. HUTCHINSON. What is the information he gets before him?

Mr. ESTABROOK. By formulating constructive programs and policies I mean this. I will try to explain it. Do you not suppose that every branch of the Department of Agriculture asks itself, What is the most useful line of inquiry? What should any branch of the department, what should the whole department recommend and advise the farmers to do with respect to planting crops next year?

Mr. HUTCHINSON. Do you do that?

Mr. ESTABROOK. We did do that for two years during the war. Anything of this sort, of course, requires the most complete and comprehensive and the most accurate statistics obtainable with reference to the production and supply through a period of years, not only in the United States but for every competing country in the world. I mentioned a moment ago in our project for foreign crop statistics the preparation of world balance sheets, bringing right down to date the requirements, the production, present and prospective, the probable surpluses and the deficits, the net balance for the world, whether it be cotton, wheat, or corn. These organizations, the Federal Department of Agriculture and the State colleges need that information.

Our bureau prepared such statements a year ago. We attended the meeting of the presidents of the colleges of agriculture over at Baltimore a year ago, and one of the statements was read. A number of those college presidents, including Dean Davenport, of Illinois, jumped up and said, "That is the information which the farmers want, which the colleges want, and if the Department of Agriculture has got it, get it out and publish it." We do not have the money to do it, although we did get out one statement last year. That kind of information is the correct basis and the only proper basis for constructive programs and policies.

Mr. HUTCHINSON. Out in my country now fatted calves bring only 10 cents a pound. They claim that they can not sell any meats. Can you give any solution as to why meats are going down to 10 cents a pound?

Mr. ESTABROOK. I would not attempt to give it offhand, but, if we had the proper statistical data before us, that would be perfectly clear.

Mr. HUTCHINSON. This is recently. I can not understand why fattened calves should go down to 10 cents a pound, when recently they have been bringing 20 cents.

Mr. ESTABROOK. Without this kind of data the farmers and every one interested in farming are groping in the dark. You do not know. Of course you do not. You have not sufficient information.

Mr. HUTCHINSON. I do not see how the department can get it; if people will not eat meat, the department can not help it.

Mr. ESTABROOK. I have said that every branch of the department needs this information. The Bureau of Markets needs it for its marketing program. It can not turn a wheel without it. It has to get information relative to marketable surplus production on farms, present and prospective, from Crop Estimates.

The States Relations Service, connecting up with the State agricultural colleges and the county agents, needs this information for the proper organization and program of work of the county agents.

Plant Industry needs it with respect to different varieties, farm practices, rotations, the methods which are followed in different States with respect to preparation of soil, planting, cultivation, and harvesting of different crops and especially with respect to the presence and the kinds and locations of plant diseases and the extent of damage. So also with the Bureau of Entomology, with respect to the kind and the location and the extent of damage of different insect pests.

The Bureau of Animal Industry needs this information, every item of it, which I mention in our program for live-stock reporting. They are groping in the dark unless they have it and it is simply unavailable anywhere in the world to-day. We will get some information out of the next census, but it will cover only a part of the ground. They especially need accurate information with respect to the number of each kind of live stock on farms, by age and sex classifications, the number of purebreds, the monthly changes in number, births, deaths, sales, and farm slaughters, and the entire feed situation, number of animals on feed; and forecasts of production, especially swine and sheep; as well as full statistics of dairy and poultry production.

The State colleges of agriculture, the experiment stations, the extension services, and the county agents all need information of the same kind and for the same reason, only they need it more than the Federal Department of Agriculture needs it. Without that information they can not function properly, effectively, and economically. They are groping in the dark without it, and they have no means of getting it on their own account because if they got it it would be only fragmentary. It would relate only to certain States, and the law of supply and demand is not limited to a particular State. The Bureau of Crop Estimates is the only organization that can get it on a nation-wide basis.

State departments of agriculture need more or less of this information, especially on a county basis, in their regulatory work.

Transportation companies need full and timely forecasts and estimates of marketable surplus production on farms by counties in order to estimate the cars required.

Boards of trade and chambers of commerce which deal in agricultural products need accurate, disinterested, and authoritative crop

statistics so that the price adjustments and price movements shall be responsive to the facts of production and supply rather than to the conflicting claims of interested speculators.

Buyers, distributors, and handlers of farm products all need this information, and just to the extent that the information is accurate and dependable, the risk involved in buying farm crops and carrying them in storage is reduced, and just to that extent in competition with each other they can afford to pay better prices to the producers.

Banks and other financial institutions need this information in order that they may supply the necessary funds to finance crop production and marketing. That is a big item in agriculture. Few people realize that hundreds and hundreds of thousands of dollars, running into millions, have to be supplied to carry farmers to produce and to handle crops when they are harvested and ready for market.

Insurance companies are beginning to call for this information. Why? Because there is a great wide and undeveloped field of insurance for crops and live stock. It is a field that they are considering entering and developing more widely than in the past, and unless they have dependable information it means that their rates of insurance must be sufficiently high to cover the unknown element of risk. Just to the extent that the information is supplied them and is dependable, they can reduce those rates.

Manufacturers need this information in order that they may buy the necessary raw materials and convert them into manufactured commodities, farm implements, equipment, and supplies months in advance of the time they will be needed, and in order that they may know the counties of surplus production in which these commodities must be distributed.

And so also merchants, jobbers, and retailers need the information for the same purpose, that is, information upon which to base their advertising and selling and distributing campaigns, so that their wares may be available when and where needed. And just to the extent that that crop information is dependable and is localized by counties, so that they can avoid sending the manufactured products into counties of deficient production and low purchasing power, they avoid losses, and by avoiding losses their costs are reduced, and they can afford to reduce the selling price, and in the aggregate that amounts to considerable. It means millions of dollars to the American people.

The CHAIRMAN. You are now speaking of advance information, when you speak of manufacturers estimating in advance?

Mr. ESTABROOK. I am simply enumerating the classes of people who will be benefited by having this improved service. The manufacturers have to estimate these things months in advance, in order that they can secure raw material, get it to the factories and convert it into commodities which they have to sell to the farmers, and get it back and distributed by the time the farmers need it.

The CHAIRMAN. Do you propose to estimate in advance?

Mr. EASTABROOK. Yes, by counties. We propose to map monthly the regions of surplus and deficient production. It is information that will be worth millions of dollars to merchants and manufacturers of this country as well as to the farmers. They are now

spending hundreds of thousands of dollars in attempts to obtain that information through their salesmen and other sources.

The CHAIRMAN. What information could you give a manufacturer as to next year's crops? He is manufacturing now for next year.

Mr. ESTABROOK. He would not get much now, because now it is not available. But I included in our crop production program this item of information, the farmers' intention to plant in advance of the planting season.

The CHAIRMAN. The proposition, then, is to interview the farmers and find out what they are going to plant?

Mr. ESTABROOK. We obtain from this estimate of 215,000 farmers that we now have on the list—and we will have more if our facilities are expanded—we will obtain from them just as was obtained in 1917 and again in 1918 a report from them as to what they intend to plant. They make up their minds definitely in advance of the planting season. They know precisely what they are going to plant. And those reports will be obtained and published perhaps in February or March of each year. With that before us we have real, definite information on what the prospective plantings are going to be, and the only object of obtaining that information is this, to ascertain before the crops go in whether or not the acreage to be planted is likely to be too large or too small and thereby to avoid possible overproduction with its ruinously low prices or possible underproduction, which is almost equally unsatisfactory. Both are unprofitable, and both are unnecessary.

Mr. HUTCHINSON. Where can you find a man that will know beforehand what he is going to plant next spring?

Mr. ESTABROOK. Nearly every farmer in the United States.

Mr. HUTCHINSON. He can not tell where he is going to get seed potatoes.

Mr. ESTABROOK. That is contrary to my experience.

Mr. HUTCHINSON. I am a farmer, and I say that they do not know what they are going to do.

Mr. ESTABROOK. I beg to differ from that. I am a farmer, and I know now exactly what will be planted on my farms the coming crop year.

Mr. HUTCHINSON. I think I know in my own section.

Mr. ESTABROOK. That possibly may be true of some few sections.

Mr. HUTCHINSON. Can you tell me if the farmers in this country know if they are going to get all the fertilizer they want next spring?

Mr. ESTABROOK. Not at all.

Mr. HUTCHINSON. How can they tell?

Mr. ESTABROOK. Because crops will be planted whether fertilizers are obtainable or not.

Mr. HUTCHINSON. They will not have a big crop, will they?

Mr. ESTABROOK. That is true, but so long as the memory of man runneth crops have been planted. I do not know of a year when they did not plant, nor do you, either, do you? I have a farm, and I know exactly on every acre what is going in, and so does nearly every other farmer I have talked with. As I say, in 1917 and 1918, while we were in this great World War, and it was said that the winning of the war depended upon the food production, and that was a most important factor, the Department of Agriculture wanted

definite information and the Bureau of Crop Estimates obtained it months before the crops went into the ground. It was for the information of the Cabinet, the Secretary and the administrative officials. Those reports were reassuring. They showed very clearly that the farmers proposed to increase the acreage in food crops and they did, they increased it in 1917 and 1918 to something like 32,000,000 acres more than had ever been planted in food crops before. And those preliminary estimates of farmers' intention to plant before the season began checked out to within 1, 2 or 3 per cent of final estimates, demonstrating conclusively that farmers do know before planting exactly what they will plant if weather conditions permit.

Mr. HUTCHINSON. You take last year's winter-wheat crop, they were guaranteed \$2.26 for wheat. It is estimated to-day that they are 12,000,000 acres short, is it not?

Mr. ESTABROOK. Yes.

Mr. HUTCHINSON. Why do you estimate it that short; what are the reasons?

Mr. ESTABROOK. Because of the evidence that was submitted to us by the American farmers. That is why we estimate that reduction.

Mr. HUTCHINSON. Why did they say they did not plant it?

Mr. ESTABROOK. Many reasons were assigned, a great many reasons, but the estimate of the Bureau of Crop Estimates was based on the evidence before it.

Mr. HUTCHINSON. And you estimated that there would be 12,000,000 acres less.

Mr. ESTABROOK. I do not recall the exact figures. It will be found in the December crop report. It is very much less. Just recalling from memory only, the acreage of winter wheat for the 1919 crop was around 50,000,000. I am speaking from memory only; the estimate for last month of the winter wheat crop is around 38,000,000 acres. There is a reduction of about 12,000,000 acres, as you say. That is not wholly unaccounted for. The farmers have good reasons.

Mr. HUTCHINSON. The main reason is that they could not get it in.

Mr. ESTABROOK. That is part of it.

Mr. LEE. The main reason is that they did not have the guarantee, I think.

Mr. HUTCHINSON. Yes.

Mr. ESTABROOK. If you will permit me to resume the thread of my argument, I will continue to point out other classes of people who are interested in these estimates.

The CHAIRMAN. Do you contend that this increase of crops was due to the reports that you furnished?

Mr. ESTABROOK. No.

The CHAIRMAN. You have spoken of the reports in 1917 and of the large increase. Did the report have anything to do with the increase of crops?

Mr. ESTABROOK. No; I can not say that it did. There were many contributing causes to the increase in crops. It was largely due to the appeal to the patriotism of the farmers.

The CHAIRMAN. Practically every farmer was appealed to to plant and do his best.

Mr. ESTABROOK. Yes; and he responded.

The CHAIRMAN. The preliminary report had nothing to do with that, did it?

Mr. ESTABROOK. Absolutely not; but it did this: It was highly important that the Government, which was responsible for the conduct of the war, which was responsible for the lives of those young American citizens who went across the water, should know what the food supply of the United States was. It was of paramount importance for the winning of the war, for the preservation of our form of government, and of human liberty, and for the protection of our lives and property that the food supply should be ample, and it was vitally important that the Government should have definite information regarding present and future food supply. This was the kind of information which the Government tried to get, and they got it through the Bureau of Crop Estimates. Now, it turned out that the information was reassuring. Suppose that those reports had indicated that a decrease in food-crop acreage was impending? Would not that information have been of tremendous value? Would it not have been necessary then for the Government and all State agencies to have redoubled their efforts to insure ample production? I mention that because it is the probable course of agriculture in the future, an intelligent preparation and following out of systematic programs of production to maintain a proper relation between production, or supply, and consumption requirements, or demand.

The CHAIRMAN. You took an invoice and told them how much they had in the country? That is outside of what you are contemplating in the future, is it not?

Mr. ESTABROOK. No, sir; we did not take an invoice; we estimated the farmers' intention to plant, and that is exactly what we propose to do in future.

The CHAIRMAN. Crop estimates and invoices are two different things?

Mr. ESTABROOK. That was a crop estimate, an estimate of prospective acreage.

The CHAIRMAN. It was not estimating as to the future in telling them what they had in the bins, was it?

Mr. ESTABROOK. No, sir.

The CHAIRMAN. That was what they were interested in at the time?

Mr. ESTABROOK. No, sir; this was in the way of estimating an intention to plant, purely a psychological deduction. The acreage had not even been planted. It was not a matter of record. It existed only in the minds of farmers.

The CHAIRMAN. They were impressed and urged to plant?

Mr. HUTCHINSON. And guaranteed the price.

The CHAIRMAN. Was the price guaranteed or cut?

Mr. ESTABROOK. If I may proceed again with my argument to show who will benefit from the improved service: Seedmen are interested, buyers of seed especially are interested, in knowing the production of seed and the supply, the probable relative supply and the probable prices.

Nurserymen in the same way are interested, and buyers of nursery stock are interested in having definite information with respect to the essential facts of the production of those crops, and they are large crops. They run into hundreds of millions of dollars.

Mr. ANDERSON. Are you seriously contending that many farmers in the United States look over your estimates before they determine what their year's rotation is going to be?

Mr. ESTABROOK. No, sir; on the present basis the number would be relatively small. We know that many farmers do that now; intelligent farmers study the crop reports carefully, and all farmers would profit financially by paying more attention to the Government crop reports. The Federal Department of Agriculture, the State colleges of agriculture, the State experiment stations, and the county agents are the organized agencies that reach out and carry the information to the farmers. The press of the United States is carrying this information. The statistics which you see in local papers and in various magazines are in 99 per cent of the cases the figures of the Bureau of Crop Estimates. They do not bear the tag of the Bureau of Crop Estimates, but that is where most of them originate.

Mr. JACOWAY. They get the benefit of your work?

Mr. ESTABROOK. They get the benefit of our work, and that is how it reaches these farmers. There are unquestionably many farmers in the United States who have never heard of the Bureau of Crop Estimates, who have never seen a monthly crop report, and it is partly because the printing fund is so low and inadequate that we can not even send it free to those who apply for it. We send it only to our crop reporters, who are rendering a service of great value and worth large sums of money.

Mr. ANDERSON. There is no question that, if you could send it free to the people, you would send out many more of them than you now have. My observation has been that it is a whole lot easier to give people something for nothing than to give them something they have to pay for.

Mr. ESTABROOK. That is true. Now, in 15 out of the 48 States in which we are cooperating we publish more detailed figures than we can in the Monthly Crop Reporter, and that reaches all the local papers in the State and obtains a very wide dissemination. But my contention is this: That the farm organizations are going to make use of this information in the future as they have never made use of it in the past, and that they are going to give the cue to the farmer members as to what is the wise thing to do in the future with respect to increasing or decreasing their acreages or increasing or decreasing the number of live stock. That is how it is going to work.

Mr. ANDERSON. If they do that, if some of the legislation now proposed is passed, they will all be in jail.

Mr. HUTCHINSON. Going back to your estimate of spring wheat and winter wheat crop. If your estimate of the spring-wheat crop had been correct, the Government would have lost a billion dollars that they appropriated to help out the farmers, would it not?

Mr. ESTABROOK. No one contends that an estimate as early as that in the season would be true. I never heard anybody contend that they were correct, except for the time when they were pre-

pared. They were absolutely correct then, but the future course of a crop depends almost entirely on the weather, and in the present state of our knowledge we can neither control nor forecast the weather in advance of harvest.

Mr. HUTCHINSON. But we are appropriating money for such estimates.

Mr. ESTABROOK. At the time it was made it was the best estimate that could be made. We do not claim it was a correct estimate, except for the date on which it was made, but the farmers thought that was the condition of their crop at that time and they so reported. Now, the Bureau of Crop Estimates is not responsible for the weather that comes afterwards.

Mr. LEE. That is what happened this last year?

Mr. ESTABROOK. Absolutely. While we are on that question, will you permit me to say that we now have for the first time a pretty accurate check on the wheat estimates of the bureau from the United States Grain Corporation, since it has had charge of the buying and distribution of the grain crop of the United States. For the first time the bureau has a check on its estimates of wheat production. In 1918, at the close of 1918, Mr. Barnes or Mr. Hoover made the statement that the Bureau of Crop Estimates had overestimated the wheat crop. Now it happens that the Grain Corporation gives out weekly reports of receipts at all mills and elevators of a certain capacity, and keeps tab on all the wheat. At the close of the 1918 season, taking the total receipts as reported by the Grain Corporation, and adding to it the 80,000,000 or 90,000,000 bushels of wheat that must have been used to plant the following crop, and adding to that the 2 per cent that is normally fed to poultry and live stock—the damaged and inferior grain—and making a fair allowance for the wheat that is ground in local country mills of small capacity, which were not required to report to the Grain Corporation, the published estimate of the Bureau of Crop Estimates came within 2 per cent, less than 2 per cent, of the total 1918 wheat crop thus accounted for, and that was nine years after the last census was taken, when the difficulties involved in estimating acreage correctly were greatly increased.

Picking up the thread of my argument again, I have said that the seedsmen and nurserymen and the buyers of seed and nursery stock are interested in this information. It means dollars and cents to them.

Chambers of commerce and boards of trade and local committees of various kinds are constantly calling for estimates as to crop and live-stock production of all kinds, in order that they may advertise the agricultural resources and advantages of their communities, and this is a laudable ambition on their part, because it stimulates local pride and local enterprise. The other side of this phase is that prospective investors and settlers would be benefited by such information, authentic and authoritative, disinterested and complete, with respect to crop and live-stock production of countries in which they are becoming interested. Such information would save investors and settlers millions of dollars annually if they had disinterested information emanating from the Government as a check upon the rather lurid statements of unscrupulous promoters of various kinds.

Another important class of people interested in complete and dependable crop and live-stock production statistics are teachers, economists, publicists, students, and writers, and it is greatly to the public interest that these men shall have such data as a basis for right thinking and correct conclusions.

Consumers—and that takes in everybody—are or should be interested in the crop estimates because they are an index of present and future supply, and of farm prices. Farm prices are of interest to consumers in comparison with the prices which they have to pay, and it is the gap between those two prices which the Bureau of Markets will be supposed to bridge as time goes by.

Legislators—and that includes you gentlemen in Congress, and in the State legislatures—have need of definite and dependable information with respect to the essential facts of crop and live-stock production. I have no doubt that every member on this committee at times has occasion to use crop and live-stock statistics, and they need them as the basis of wise legislation. Otherwise you are groping in the dark.

And last, but not least, the Federal and State departments need the most complete, the most dependable, and the most unbiased, and authoritative information with respect to the essential facts of crop and live stock production. The Government needs accurate data for this greatest of all industries, needs it in time of peace to promote the prosperity and welfare of all the people, and needs it especially in time of war to insure victory.

Now, I have attempted to point out the fundamental and paramount importance of agriculture. The primary object of all Federal and State agencies and of all farmers is to make the business of farming profitable. I have referred to the rapid growth of the farmers' organizations. I have shown the vital connection of the price-determining factor, relative supply, on the business end of farming, as determining whether or not it is a profitable business. I have outlined in a very brief way the enlarged program of the bureau for supplying the kinds of information that are needed, the information which is not now available, and I have attempted to enumerate the different classes of business interests that need this information.

Now, another question that the committee will probably be interested in is, why can not this enlarged and this improved service be rendered with the present appropriation? The most direct answer to that is that in trying to meet the increased demands upon the bureau in the last few years, demands which had doubled and trebled and quadrupled before the World War broke out, which were greatly stimulated by the war, and which have continued to increase since the signing of the armistice, the bureau has expanded beyond the limits of its resources. It has added first one crop and then another, one item of information and then another, to its regular program. It has loaded up its field agents until they have had to work nights and Sundays and holidays in their attempts to supply the information called for, and it is quite apparent to the administrative staff that this service can not be continued until June 30th next on the present appropriation. We shall absolutely have to cut out certain kinds of work. Right now returns for certain investigations

are accumulating in the bureau, for want of sufficient clerical force to tabulate and summarize them. So it is absolutely apparent that there can be no further increase without additional funds.

In its attempts to take care of this growth in the work without corresponding increases in its appropriation, the bureau has developed what we believe to be the most highly efficient organization in the entire federal service. If there are any more efficient, we do not know it. It has developed the best system of crop estimating in the world. It has taken 50 years or more to do it. Specialists have come from the ends of the earth, from all the great governments of the world, to study the organization and system of the Bureau of Crop Estimates, and they have all said that there is nothing comparable with it in the world; and yet notwithstanding this splendid organization and service which has been developed, there are important kinds of information which the bureau simply can not supply with its limited resources, information that is fundamentally important to agriculture, information with respect to live stock, county data, marketable surpluses, foreign crop and live-stock information, and better methods of summarizing and publishing data that are collected. To supply this information, having already exceeded our resources, it is absolutely necessary to have additional funds.

The committee may be interested in asking this question, Why, if this enlarged program and if this improved service is so valuable to the American farmers and business men, why has it not been submitted to Congress before? There are good reasons and conclusive for that. The bureau was reorganized in 1914, a reorganization made necessary by the fact that it had fallen into a rut. Its personnel was demoralized. It was disorganizing and disintegrating. It was not rendering the service the country was entitled to for the amount of money that was being expended. It was the subject of a great deal of adverse criticism. It was falling into disrepute, and there were ugly rumors concerning it. By far the most important innovation in the reorganization of 1914 was the appointment of trained field agents, a man in each State or each group of small States, a man of at least five years' practical experience in farming, with an agricultural education, who would devote his entire time to collecting and accumulating the statistics of agriculture in the State, traveling over the State monthly and personally inspecting and judging crops, personally interviewing the best informed men in each community, and building up lists of selected crop reporters, the best informed men in each community, and obtaining the necessary cooperation of State officials.

Mr. ANDERSON. When these crop estimators report a situation, do they give you an estimate of what the situation is in the county or do they give you specific facts with respect to matters which are within their own knowledge?

Mr. ESTABROOK. We have various kinds of reporters, Mr. Anderson—the county, township, and special. The county reporter reports on conditions throughout the county, as the result of his observation, and he also has aids reporting to him. We try to get men who get through the county in the course of their business occasionally.

The township reporters report for their immediate neighborhood; that is, the farms within their personal knowledge, the farms that they see from week to week.

Then we have a very large list of individual farm reporters, men who report simply what is on their own farms. That is as exact as any census can be; more exact, in fact. They report so many horses, and the changes in number that take place, so many cows, so many swine or sheep, so many acres of this, that, and the other crop on their own individual farms. And these crop estimates are a combination of every possible source of information that is available.

Mr. ANDERSON. The reason I asked the question was that I can not see how any compilation of guesses of men who make statements as to the condition of crops would be very valuable unless it was backed up by sufficient number of cases representing actual conditions, actual facts to give a basis.

Mr. ESTABROOK. That is absolutely true, and that is the principle we follow with respect to each of these crops. It can be determined mathematically, for instance, just how many reports are required, how many individual reports are required to give a certain degree of accuracy, and we try to have an ample number to give us that statistical average.

Mr. HUTCHINSON. You said a number of farmers report. To whom do they report?

Mr. ESTABROOK. We have various classes. Some of those classes report direct to the field agent in each State and some directly to Washington.

Mr. HUTCHINSON. Some report to you?

Mr. ESTABROOK. Yes.

Mr. HUTCHINSON. And you have a township reporter?

Mr. ESTABROOK. The township reporters, and the county reporters, and many of these special reporters report direct to Washington.

Mr. HUTCHINSON. Have you any State reporters that cover the whole State?

Mr. ESTABROOK. We have only the trained field agents. The trained field agent in each State has all the way from 500 to 5,000 men in his State reporting directly to him.

Mr. HUTCHINSON. Directly to him?

Mr. ESTABROOK. Yes; and he applies to the reports as they come in his own personal observations and trained judgment; he interprets them by the personal knowledge that he has picked up in his travel and interviews with the best informed men, and at the end of the month he summarizes all these reports and sends to the Washington bureau the average of the reports that come to him, his personal judgment, and brief comments in explanation of the numerical estimates. These reports of field agents and crop specialists are in addition to the many thousands of reports received at the Washington office directly from various large classes of reporters, such as the county, township, and special reporters.

Mr. HUTCHINSON. At Washington you sort them out so that they do not conflict?

Mr. ESTABROOK. Only the results of the States' figures come to us from the field agent. He retains individual reports there. The reports of each class of reporter received at Washington are tabulated and summarized separately and each is used as a check on the others.

Mr. HUTCHINSON. You said that some farmers report directly to Washington.

Mr. ESTABROOK. We have all the county reporters—about 3,000—and all the township reporters—about 33,000—and many special lists of reporters reporting directly to Washington. Now, each class of information is tabulated separately and independently. Each is used as a check on all the others, so that we are never dependent on any one source of information.

Mr. JACOWAY. I know a man in my home town who will take the testimony of 50 or 100 farmers before he sends in a report. He is a very conscientious fellow. He used to be, and I think he still is, doing some work of that sort. I have checked up his reports and found them more than fairly accurate. They are good. But he takes pains to ask men in this and that portion of the county. He is the county reporter of my county.

Mr. ESTABROOK. That is frequently done. Among the crop reporters are many county agents. Wherever they are willing we are glad to utilize them.

Mr. HUTCHINSON. You do not pay them?

Mr. ESTABROOK. No, sir.

Mr. HUTCHINSON. You do not pay any of the township reporters?

Mr. ESTABROOK. None.

Mr. HUTCHINSON. The only men that you have to pay are the field agents?

Mr. LEE. They have the franking privilege?

Mr. ESTABROOK. That, of course, relates only to postage on official correspondence.

Mr. JACOWAY. You do not pay anything to anybody but the field agents?

Mr. ESTABROOK. No; and the franking privilege is simply for sending reports to us.

I was trying to explain why this enlarged program had never been presented to Congress before. I said that the bureau was reorganized, that we employed these new field agents in 1914, and that they had certain qualifications. Now, it does not make any difference how competent, how well qualified, how well educated a man is when he enters the crop-reporting service, he is of very little value to the service until his judgment has been developed, until he has made all the necessary connections, until he has become acquainted with the best-informed men in each community, and until he has visited each county month after month and year after year so that he knows conditions on a comparable basis. No man can enter a state for the first time and form a very intelligent judgment of crops on a comparable basis. It takes years to do that. It took three or four years for this corps of field agents to be trained, to become acquainted with the crop-estimating system, and to overcome the prejudice that existed at that time. They have succeeded in doing it. It was not until after we had gotten into the war that the field agents were really developed into live, useful men.

The chief of the bureau was new to the service. He was assigned to the job for administrative reasons. He never asked for it, and the first three or four years of his service was devoted to studying the system that has grown up and developed through half a century of experience, to studying the organization and its personnel, to improving the organization, tightening up and improving here and there, to building up a morale, and *esprit de corps*, to inspire these

men with the idea of practical service to the farmers of the United States, and the result is that instead of having a bureau which is in disrepute, as it was six years ago, the bureau now commands the respect of farmers and business men throughout the United States. It now has friends in every State and in every county. The entire press has changed its attitude. It is no longer full of unjust criticisms, and the entire press is at the service of the department in publishing these crop reports and disseminating them to the public.

It would have been manifestly unwise and uneconomical to have formulated such a program for the expansion of the service and presented it to Congress until the necessary changes had been effected in the organization, or until the administrative staff had by actual experience found the limit of efficiency. And they found that by adding to the load which was carried by the employees of the bureau until the breaking point was reached, so that we know absolutely what the bureau can do and what it can not do. And that is why this program is submitted now, because we have reached that stage in the development of the organization.

Why should this expansion be made now? Why should it not be deferred until some future time? There are many reasons, and some of them to me are very convincing. One of them is that if this service is of practical financial value to the farmers in their business, if from a purely business standpoint it is worth dollars and cents to them, the 14,000,000 farmers and taxpayers in this country are entitled to that information now, and it is not fair to ask them to wait until some future time to get it.

Mr. JACOWAY. You said there were 14,000,000 farmers. How did you arrive at that figure?

Mr. ESTABROOK. It is estimated that there are 7,000,000 farms now with the growth that has taken place since the last census; 7,000,000 farm owners and 7,000,000 farm helpers, hired men. It was about that proportion at the last census, six and one-third million owners and six and one-third million helpers, making between 12,000,000 and 13,000,000 farmers at the last census, so it is fair to say that there are about 14,000,000 now, in round numbers.

Agriculture is the greatest of industries, an industry that is fundamental and paramount. It is the foundation of the prosperity of all other industries. It needs this information, and it needs it now, and it is big enough to justify giving that information to it now and not at some later time. This service should have been available to the American farmer years ago. If it had been, it would have prevented the loss of many, many millions of dollars, and agriculture would have been more prosperous, more efficient, if it had had such service in the past. The reasons why the matter has never been broached to Congress before, I have already explained.

Farmers' organizations need this service now, especially while they are organizing, and, perhaps, there is no time when information of this character will be of greater value to agriculture and to the farmers of this country than right now. It is a period of changed conditions, of adjustments and readjustments, with accumulated demand, deficient supply, high prices, and reduced purchasing power of the dollar.

Another reason: Much of the estimating work of the Bureau of Crop Estimates is based on the decennial census. The decen-

nial census is now being taken, and this enlarged services should start off with the results of this census. Unless it does, if one or more years are allowed to elapse, it will be impracticable or impossible to undertake the improved service which we have outlined. It is especially important that estimates of acreage, numbers of live stock—and there is a great live stock program involved—and county estimates shall be available continuously beginning with the results of this present census.

Now, summarizing my statement, which has been interrupted and broken: Dependable data with respect to the essential facts of production and supply are absolutely essential to make the individual farm business a profitable business, absolutely essential to enable farmers' organizations to carry out the objects for which they have organized, absolutely necessary for much of the constructive work of the Department of Agriculture itself, and of the State colleges of agriculture and experiment stations, and the State extension services, and the county agents, for which millions of dollars of public funds are expended annually. The Bureau of Crop Estimates has developed what we believe to be one of the most highly efficient organizations of its kind in the entire Federal service. It has reached and even passed beyond the limit of its present resources. The demands for this kind of information have been constantly increasing in the past. They are increasing now, and from the very nature of things they may be expected to increase in the future.

The enlarged program which has been prepared to meet these demands is a comprehensive program. It is constructive, it is complete, and it is sound. This program, every feature of it, has been demonstrated to be feasible. No part of it is experimental. We know exactly what we can do. Results should be available, results of practical financial value to every farmer should be available very shortly after the necessary funds are made available.

That program has the approval of the Secretary of Agriculture. It was mentioned specifically in the President's message to Congress. The principle of supplying adequate funds for the bureau was embodied in a resolution of the National Federation of Farm Bureaus at its first meeting in Chicago. That same principle has the approval of the Iowa State Federation of Farm Bureaus and of the Illinois Federation. It was recommended by the statistical committee of the United States Chamber of Commerce at its convention last April.

Certain projects of that program are indorsed by the National Nurserymen's Association, whose president was here to-day. It is indorsed by the Peanut Growers' Association of Virginia and Carolina, the only two associations of the kind which have any knowledge of such a program. They obtained it incidentally when their officers called at the bureau and asked for increased service and criticized the bureau because of its inadequate service in the past. I considered it entirely proper to enlighten those officers as to the plans the bureau had in mind to submit to Congress later for developing their service and needs, and those organizations have representatives in Washington, and I believe they have applied for permission to appear before the committee. I have no doubt that all organizations of producers and all organizations for promoting agriculture, and all

men financially interested in agriculture would approve this program if it were brought to their attention.

Unless adequate funds are provided for this enlarged program, other branches of the Federal Department of Agriculture, the State colleges, the experiment stations, the State extension services, and the county agents, and the farmers' organizations will attempt to secure that information on their own account. Now, you may ask, Is that a calamity? Is there any reason why they should not? There are these reasons: They will attempt to collect this information because they must have it, just as they have attempted in the past, just as they attempted to collect it during the World War. They will attempt to do it with a much less efficient organization than the Bureau of Crop Estimates has developed. They will do it with much less experience. Statistical work is a speciality just like any other specialty in any line of business which requires long preparation, training, and experience. The results they obtain will be very unsatisfactory because necessarily they will be incomplete and fragmentary. The expense involved will be far greater than the appropriation proposed by the Bureau of Crop Estimates. Therefore the appropriation of adequate funds by Congress to enable the Bureau of Crop Estimates to expand and improve the crop and live-stock reporting service is an investment, and not a dead expense—an investment that promises profitable returns to every one of the 14,000,000 farmers of this country.

Much of the work of the bureau, as I have said, depends on the decennial census. That census is now being taken, and this improved service should be put into effect now or not at all.

It is hardly necessary to remind this committee that the crop and live-stock reporting service is purely a business service, wholly non-partisan, permanent, countrywide. It is useless to talk about any State organization attempting to get the information that the Bureau of Crop Estimates gets, because complete information with respect to one State is of very little value unless you have comparable data for all States. The law of supply and demand is no respecter of State lines.

A further fact should be borne in mind—that the expenditure of this increase in the appropriation will be made largely in the States themselves. It is the intention, the policy of the bureau, to develop and strengthen the field branches of the bureau in the States, to make those branch offices the clearing houses for statistical information in the States. The assistants of the field agents and crop specialists and clerks to be employed in the field will be legal residents of the States in which they serve and as such will be given preference in appointment. Their interests will be identified with those of the people with whom they are associated. The bureau organization in Washington will simply maintain uniform methods throughout the United States so that the data will be comparable, and will correlate and bring together and summarize the information collected in the various States for the Nation as a whole. So that each State will benefit equally from this improved service. Every county will benefit, every township, every local community, and every congressional district. They will all benefit alike.

The total appropriation for the Bureau of Crop Estimates as proposed here constitutes a per capita tax of less than a 1-cent postage

stamp. Is that such a heavy burden? Can the business men in this Congress consider cutting the corners off that postage stamp for a service which promises returns worth many dollars to every farmer, worth thousands of dollars to business men, and worth millions of dollars to the country as a whole? I hope the committee will bear that in mind.

Mr. JACOWAY. What did you say it was per capita?

Mr. ESTABROOK. The appropriation constitutes a per capita tax of less than a 1-cent postage stamp. In other words, we are asking for less than \$1,000,000. There are more than 100,000,000 people in the United States.

Mr. JACOWAY. It would be a half a cent, would it not?

Mr. ESTABROOK. About half a cent per capita. The entire appropriation we are asking for is \$967,000, less than \$1,000,000. The entire population is more than 100,000,000.

The CHAIRMAN. This appropriation is about \$1,000,000, while the population of the United States is about 110,000,000.

Mr. HARRISON. It would be a half a cent on the basis of the increase asked for and 1 cent on the basis of the total appropriation for the bureau.

Mr. ESTABROOK. Each dollar represents a hundred cents, and a 1-cent postage stamp would be the 1 cent. The entire appropriation estimated for the whole Department of Agriculture amounts to less than 40 cents per capita. It might be profitable to compare this modest appropriation for agriculture with some of the other appropriations already made or that will be made by this Congress for less important objects.

Now I am ready to consider the details of the estimates as they are printed before you, but before doing so I want to submit, with the recommendation that it be printed in the hearings, a copy of the enlarged program. It is not so very long, but it sets forth the details of what we propose to do for each and every crop and class of live stock, and the organization with which we propose to do it, and I think if this is printed in your hearings, it will be available for reference and you can turn to it at any time.

Mr. HEFLIN. Had you rather get through with this subject before I ask you some questions regarding the estimate of the cotton crop of 1919?

Mr. ESTABROOK. I am about through. There is a second exhibit which I should like to include in the printed report of the hearings, a brief statement, a sheet and a half perhaps, or two sheets, of specific instances of farmers, farmer crop reporters, benefiting by using information which they have obtained from the crop report, showing how many dollars that each farmer made by paying attention to crop reports. I do not know of any better evidence that could be submitted.

My assistant, Mr. Gage, has brought a number of commendatory letters from the files. I do not know whether you want to see them or include them in the hearings or not. They are there and we can add to them indefinitely. They came without solicitation and without suggestion.

We have also extracts from editorials from papers of various States commending the organization and work of the Bureau of

Crop Estimates. To anyone who cares to see them they are available. Now I am ready to consider your questions.

Mr. HEFLIN. Mr. Chairman, I want to ask some questions regarding the recent estimate of the last cotton crop. The ginner's reports show that up to December 12, 1917, we had ginned 10,130,000 bales; to December 12, 1918, 10,281,000 bales; and up to December 12, 1919, 9,400,000. This report shows 730,000 bales less than in 1917 and 881,000 bales less than in 1918. You estimated this crop at 11,030,000 bales and in doing so you have figured in your estimate the largest per cent of unginned cotton since 1908. How did you arrive at such a conclusion, Mr. Estabrook?

Mr. ESTABROOK. That, Mr. Heflin, is based entirely on the evidence submitted to the crop reporting board. I can not attempt to carry the details in mind. I simply recall the fact that in western Texas and portions of Oklahoma and northern Georgia, the evidence was to the effect that there was a larger proportion of unginned cotton than usual. Now it happens that the western portion of Texas is where a large part of the crop is located this year. I noticed that the December 24 report from the cotton crop specialist of Texas showed that more than half of the cotton crop of western Texas was still unpicked and was undergoing great damage from bad weather; that they were short of help; that they were paying from 4 to 6 cents a pound to have it picked. But nevertheless the cotton is there.

Mr. HEFLIN. I am of the opinion that you have overestimated this crop from 300,000 to 500,000 bales. The president of the American Cotton Association agrees with me and the commissioners of agriculture in Florida, North Carolina, South Carolina, Mississippi, and Louisiana have all expressed to me their belief that your estimate is too large. Of course, the ginner's report will tell later on who is correct.

Mr. ESTABROOK. It is a matter of opinion.

Mr. HEFLIN. I have a letter here from one of my constituents in which he says that you estimated this last crop on the gross weight of bales instead of net weight of 500 pounds. Is he correct about that?

Mr. ESTABROOK. He is incorrect.

Mr. HEFLIN. Have you used the same system in estimating this crop that the bureau has been using all along?

Mr. ESTABROOK. We estimated precisely the same as always—so many pounds of lint. It is merely a matter of arithmetic to divide that by the number of pounds of lint in the bale to ascertain the number of bales. Your correspondent probably made the mistake of not allowing for tare to cover ties and bagging, and he probably divided by 500, which was a mistake.

Mr. HEFLIN. This gentleman stated that the gross weight made 11,030,000 bales, whereas the net weight estimate would have made it 10,555,000.

Mr. ESTABROOK. Your correspondent made no allowance for the tare.

Mr. HEFLIN. Bagging and ties?

Mr. ESTABROOK. Bagging and ties. To find the number of 500-pound bales of so many pounds of lint, we do not divide by 500. We take the tare out of the 500 and it leaves 478.3 pounds, and if he

will divide by that figure, he will find practically that it is 11,030,000 bales.

Mr. HEFLIN. In making this estimate did you figure the damage done by the boll weevil?

Mr. ESTABROOK. Yes.

Mr. HEFLIN. And abandoned acreage?

Mr. ESTABROOK. Yes; abandoned acreage.

Mr. HEFLIN. How did you arrive at the abandoned acreage?

Mr. ESTABROOK. Our field agents carried on investigations, and it is included in instructions to crop reporters themselves to make allowances for abandoned acreage or adverse weather or whatever it may be. It is their best judgment of what the crop under the present conditions, whatever those conditions may be, ought to be rated at.

Mr. HEFLIN. What percentage of the farmers in cotton counties are consulted each year as to the number of acres planted in cotton?

Mr. ESTABROOK. We have in the cotton States about 65,000 crop reporters besides our trained field agents.

Mr. HEFLIN. I asked several farmers in Alabama during the spring and summer whether they had been asked about the number of acres planted in cotton, and they said that they had not. You do not make inquiry of all of them, do you?

Mr. ESTABROOK. That is impossible. That would require a census and a census would cost \$10,000,000, to get that information from every farmer, and the results would not be available under one or two years after the census was taken.

Mr. HEFLIN. As to the acreage abandoned, it would be about the same percentage of farmers that would be consulted?

Mr. ESTABROOK. Yes. But you will note, Mr. Heflin that that is one of the items we are specifically providing for in the enlarged program for increasing and improving the service. That is an item of information that ought to be furnished that has not been furnished in the past except for winter wheat. It was furnished this year, of course, with respect to cotton in compliance with a resolution of Congress that was passed.

Mr. HEFLIN. I have in mind a farmer in my county who made 60 bales of cotton last year. The boll weevil was not so bad as he has been this year.

This same farmer will get only 30 bales from the 1919 crop, just half the number produced last year.

Mr. ESTABROOK. You will find many that made 60 last year who will not make one bale this year.

Mr. HEFLIN. That is true. I addressed the Legislature of Texas in June, 1919, on cotton and on my way to Austin I saw hundreds and thousands of cotton acreage that had been abandoned. Many cotton fields in Texas were turned into pastures for cattle. Do you know what percentage of the cotton acreage has been abandoned in Texas?

Mr. ESTABROOK. Yes; I could not recall them now for I do not carry them in mind. I do know this, that the abandonment this year was greater than it has been for many years. It has been many years since the abandonment was as great as last season. Our reports show—the estimate that was made in the fall—that the abandonment since June 25 was 4½ per cent, which is very heavy. Ordinarily

it runs about 1 per cent. We had other information to the effect that the abandonment prior to June 25 was very much greater than that. The total abandonment was in excess of 10 per cent as I recall it. We estimate—we are required by law to estimate—the acreage under cultivation on June 25th, which is reported on July 1. Of course, up to that time—the idea in the mind of Congress in passing that law was that they would get the acreage after all abandonment had taken place. Ordinarily most of the abandonment was taken place by that time, but it happened this year that unfavorable conditions continued afterwards through the season.

Mr. HEFLIN. You suggested that a great deal of cotton was still ungathered in western Texas?

Mr. ESTABROOK. Yes.

Mr. HEFLIN. You just estimate the amount of cotton that is to be made and not the amount that is to be gathered and finally brought to market?

Mr. ESTABROOK. We estimate the amount of cotton that is produced in the fields, the crop on a certain date. All conditions point to a crop of so much being produced. At present we do not estimate what happens to the crop after it is produced.

Mr. HEFLIN. Then you do not have anything to do with the amount that is not gathered, but remains in the field and is never brought to market?

Mr. ESTABROOK. No.

Mr. HEFLIN. In your judgment, is not there a great deal of this cotton in Texas that will never be gathered at all?

Mr. ESTABROOK. Yes.

Mr. HEFLIN. And will be so damaged that it will not be fit for use?

Mr. ESTABROOK. Yes. The weather has been very unfavorable almost continually since the last estimate. The quantity will be reduced and the quality or grade will be very badly damaged.

Mr. HEFLIN. Do you think with the improved service you are suggesting here that you will be more accurate and come more nearly to getting the exact amount of the crop, whatever it is, that is being produced?

Mr. ESTABROOK. Unquestionably. Do you know how much money the Bureau of Crop Estimates has available for estimating the cotton crop of the South, the greatest crop of the South, a \$2,000,000,000 crop? We have about \$18,000. Why, more than that amount ought to be spent in every cotton State. It ought to be ten times as much. We are asking for \$39,000 for next year to estimate that \$2,000,000,000 crop and we think we can do it with that.

Mr. JACOWAY. Getting back to Mr. Hefflin's question, do you estimate the number of pounds in the bale when you gin the bale or some time afterwards?

Mr. ESTABROOK. We estimate that there will be so many pounds of lint produced, which was this year slightly more than 5,000,000,000 pounds. To get the number of bales we divide that by a 500-pound bale, which is the standard adopted, less tare, bagging, and ties.

Mr. JACOWAY. If you gin a bale of cotton, say, in October, and it weighs 504 pounds exclusive of the tare, will not that bale lose 3 or 4 pounds afterwards?

Mr. ESTABROOK. Yes.

Mr. JACOWAY. Do you estimate the 500-pound bale when it comes from the gin or some time afterwards?

Mr. ESTABROOK. We simply do not consider the shrinkage or increase in weight from absorption of moisture or the decrease in weight from drying out.

Mr. JACOWAY. That is where the discrepancy comes? .

Mr. ESTABROOK. There is an element there. Take the tobacco crop for instance. Tobacco can absorb up to about 10 per cent of its weight in moisture.

Mr. HEFLIN. After you receive the field report at your office, how soon do you make up your estimate?

Mr. ESTABROOK. Let us say, from the time that they make up the report until we make it up?

Mr. HEFLIN. Yes.

Mr. ESTABROOK. What time has elapsed since we received the last report from the field?

Mr. HEFLIN. Showing the conditions, the prospects.

Mr. ESTABROOK. The report relates, in the case of cotton, to the 25th of the preceding month. Cotton is estimated as a separate crop as of the 25th of the month. On that date the crop reporters fill out their blanks and send them either to the field agents or directly to the bureau. They relate to that date, filled out on that date. They are not presumed to fill out a blank after that. Some of them do. They all relate to that date.

Mr. HEFLIN. The 25th of November?

Mr. ESTABROOK. Yes. When the reports come to the bureau they are made up on the 1st day of the month. It is the 1st or 2d, depending on whether a Sunday or holiday comes in or not. This information all relates to that one day. In the case of the December report, that is a general review of all the reports coming in from the 1st and up until the 11th.

Mr. HEFLIN. Do any of these agents or correspondents who report to you report for any cotton factors or exchanges?

Mr. ESTABROOK. None of the salaried agents report to any other organization than the Government. Probably some of the volunteer crop reporters do. They are free to do what they please, and I presume some of them do. That is one reason why the bureau has guarded so well its list of crop reporters, why it has declined to furnish lists of crop reporters even to Members of Congress. It is because private crop reporting agencies have tried to get copies of the list of the Government crop reporters, and promoters of all kinds have tried to get these lists to utilize for their own purposes and speculators. If private persons could get our lists they would attempt to get advance information or to influence the reporters, and it is for that reason that we guard them very closely. They are treated as confidential.

Mr. RUBEY. I had a letter from somebody (I do not remember who it was) asking me to furnish Yearbooks for each one of the crop reporters, and I wrote to the department that if they would furnish me with a list of crop reporters I would be glad to send them a Yearbook, but they declined to do that. It does seem to me that a Member of Congress is a United States official, and he is not going to take that information and give it to anybody where

it ought not to go. It seems to me that that is information he ought to have.

Mr. ESTABROOK. That is quite a natural conclusion, but for the reason I have just stated, that private crop-reporting agencies, speculators, and promoters have tried to get those lists, which would be extremely valuable to them, and to use them for wrongful purposes. If the crop reports are worth anything at all, it is because they are disinterested and unbiased, and we can not afford to leave a loophole.

Mr. RUBEX. You can not afford to trust a Member of Congress?

Mr. ESTABROOK. It is not that, sir. We have every confidence in you, but we do not know how carefully you are going to safeguard them, what might happen to them some years later. Some of these crop reporters go on reporting for many years.

Mr. RUBEX. I am going to know who gets my Yearbooks, and I am not going to send them out unless I know to whom they are going.

Mr. ESTABROOK. We will be glad to have you or any of your representatives come down and look the list over and check it over, so that you can see to whom the Yearbooks go. What we object to is letting a copy of them get beyond our control.

Mr. HEFLIN. If you should supply a Member of Congress with this list of names it would get into the hands of members who represent grain-exchange and cotton-exchange districts.

Mr. ESTABROOK. It might prove very embarrassing.

Mr. HARRISON. You could not give it to one and refuse it to another.

Mr. ESTABROOK. This is not theoretical on my part. Application has been made to the bureau and to the department, and pressure has been brought to bear to obtain copies of the list, and when the application was denied quite naturally they went to their representatives in Congress to obtain it. Now, would it not have proved a little embarrassing to some Members of Congress?

Mr. RUBEX. I never thought about the list until they wrote to me to send them Yearbooks.

Mr. HEFLIN. If I understand you, you are safeguarding this matter in every way you can so that these people who make these reports to the Government may not be known to the speculating world?

Mr. ESTABROOK. Their names are strictly confidential. They will not be furnished to anyone. Every salaried employee of the bureau who has anything whatever to do with the preparation of the monthly crop reports is prohibited by a criminal statute from speculating in any product of the soil, from buying and selling, or from compiling or issuing any false statistics, or either directly or indirectly giving out in advance of the date set for the release of the crop report, any information, under penalty of a fine of not exceeding \$10,000 or imprisonment not exceeding 10 years, or both.

Mr. HEFLIN. I helped to pass that law.

Mr. ESTABROOK. Of course within the department itself we have surrounded the preparation and issuing of these reports with every possible safeguard. The doors are locked, telephones disconnected, and guards are stationed at the doors.

The board is locked in a room within the bureau, to which there is no ingress or egress whatever. The tabulation sheets are cut up

into different sections, and no desk clerk knows to what State these sheets relate. They are simply adding machines for the time being. We know absolutely who is responsible for every step in the procedure, and we can put our finger on any offender.

Mr. HARRISON. The board does not get the reports of the field agents on the speculative crops until the morning of the day it meets. They are kept under lock and key in the Secretary's office.

Mr. ESTABROOK. They are separated from the general mail in the post office as they come in and are delivered by special messenger directly to the office of the Secretary, where they are kept unopened under lock and key. Furthermore, the work is so systematized and arranged that no employee, no member of the Crop Reporting Board, and not even the Secretary himself has any means of knowing what the report for the United States will be until a few minutes before it is released for publication.

Mr. JACOWAY. You have made a clear statement here, and you have presented a most constructive plan. Have you figured down to the very last dollar in this appropriation that you need to carry it out?

Mr. ESTABROOK. We have. That was done.

Mr. HARRISON. Mr. Estabrook figured it to the last dollar, and the Secretary figured some more, so that the estimate has been cut to the bone.

Mr. ESTABROOK. We made the most conservative estimate which it seemed possible to make, and when we submitted it to the Secretary he fully approved of the program; he said it was constructive, was valuable, but he said, "We must economize," and he indicated a cut of about 10 per cent, which took about \$200,000, and I think as business men this committee would be justified in restoring that \$200,000. It is needed. The value of the industry justifies it a thousand times over.

Mr. JACOWAY. In order that this statement about the estimates may be complete, I ask unanimous consent to permit Mr. Estabrook to put into the record this project statement that he has presented.

The CHAIRMAN. Our expenses for printing are mounting up.

Mr. JACOWAY. This would not take up much space.

The CHAIRMAN. The committee was ridiculed, for we printed 1,700 pages one year. I want to keep down expenses. I would like to look it over first. It is practically what you have in the notes here?

Mr. ESTABROOK. I have merely summarized the general plan and pointed out its great importance and value.

Mr. JACOWAY. This statement is a summary. Anyone can understand the matter much more readily by referring to this project statement.

The CHAIRMAN. Can it not be understood as readily from the record of the remarks of Mr. Estabrook?

Mr. JACOWAY. I think not. I think this statement ought to go in the record in order that his statement may be fully appreciated. This information is so valuable that it ought to be given to the Members of Congress.

The CHAIRMAN. We will look into the matter and decide then.

Mr. RUBY. I believe in economizing as much as possible, but if you will examine some of these Senate committee hearings and see what they are printing and what other committees of the House

are putting into their hearings, I think you will find that we are very careful as to what goes into ours. This gentleman has made a long statement, but it is a very fine statement. I agree with Mr. Jacoway and think this ought to go into the record in order to complete and round out the entire statement.

The CHAIRMAN. We will take it up with the full committee.

Mr. ESTABROOK. Mr. Chairman, in connection with the inquiry of Mr. Heflin regarding the accuracy of the cotton crop report, I should like to suggest that there be included in the hearing as an exhibit an extract of a table from our annual report showing the number of pounds of lint cotton estimated by the Bureau of Crop Estimates each year for 19 years, the number of pounds of lint reported as having been ginned by the Bureau of Census of the Department of Commerce, and, in parallel columns, the percentage of error in the estimates of the bureau, both over and under.

Mr. HEFLIN. And the actual crop?

Mr. ESTABROOK. The actual crop, and it shows that for 19 years, ever since the figures of the Bureau of the Census were available—

The CHAIRMAN. How much space will it take? We do not want the whole census report.

Mr. HEFLIN. Just a page.

Mr. HARRISON. Half a page.

The CHAIRMAN. Anything that is necessary to make it clear ought to go in.

Mr. JACOWAY. I want to ask unanimous consent also to have him incorporate the duties of the county agents and also the duties of the statisticians under these crop estimates.

Mr. HEFLIN. You mean the county reporters.

Mr. JACOWAY. I mean just what I say—the county agents; that is set out in the department rules and regulations; also indicate the duties of the men under you, the statisticians.

The CHAIRMAN. That will be set out, I take it, by Dr. True.

Mr. JACOWAY. I want it stated at this point. It will require only a little printing in the record. It will hardly cost 5 cents. I would like the statement to go to Congress in its entirety, in order to make this presentation well rounded. It is something that ought to be done.

Mr. HUTCHINSON. I would like to ask one question. Are your reporters just giving you the number of pounds of cotton grown in a certain year? You do not go any further than that, do you?

Mr. ESTABROOK. The bureau estimates the acreage and the growing conditions from month to month, and finally estimates the yield per acre and total production for each State and for the United States.

Mr. HUTCHINSON. You do not give any reason why your estimate should run over 16,000,000 bales and the crop only 11,000,000 bales? Anybody that has to do with the growing of cotton would want to know the reason why.

Mr. ESTABROOK. No; it is the function of the bureau to report the facts.

Mr. HUTCHINSON. You do not give the reason why it was given as over 16,000,000 bales and was actually but 11,000,000 bales?

Mr. ESTABROOK. We made no such estimate. We have not had printing space in which to elaborate on the reasons for increase or decrease in the production of any crop.

Mr. HUTCHINSON. Do you know the reasons?

Mr. ESTABROOK. We know some of them.

Mr. HUTCHINSON. It was because of the boll weevil largely, I assume.

Mr. ESTABROOK. The boll weevil, adverse weather conditions, uncertainty as to the future; and the business of growing cotton has not been so extremely profitable as some people suppose.

Mr. HUTCHINSON. Forty cents a pound is not profitable?

Mr. ESTABROOK. Not any more so than the growing of wheat at \$2.26 a bushel. The costs of production are high. The cost of picking cotton is running from 4 to 6 cents a pound. That is as much as the lint used to sell for. In those days I have myself picked cotton many times for half a cent a pound, and if anyone should have told me that I would live to see cotton picking at 4 to 6 cents a pound I would have expected to get rich at picking cotton.

Mr. JACOWAY. Did you ever expect to live to see the day when it would cost \$3 a day for hoeing it?

Mr. ESTABROOK. No, sir.

Mr. HUTCHINSON. In our section they get \$10 to \$12 for picking up potatoes.

Mr. HEFLIN. How much did you use to pay?

Mr. HUTCHINSON. About \$2.

Mr. ESTABROOK. The members of the committee should know that every pound of cotton must be ginned: that is, the seed must be separated from the lint, and the entire crop is commercial. It has no other use or value except as it is passed into the channels of trade and is manufactured. The law requires the Bureau of the Census to ascertain and report the actual number of bales ginned in all the ginning establishments of the South, and so in that way we have a complete and absolute check as far as it is humanly possible to get a check on the cotton estimates of the bureau. For 19 years, as shown by this table, the average error of the Bureau of Crop Estimates is 1.4 per cent, and that is an underestimate and not an overestimate. For several years recently those estimates have come within less than 1 per cent, and for two recent years they have come within less than one-half per cent. There is no organization in the world, there is no individual crop-estimating agency in the world, that has estimated with any such degree of accuracy. This is a closer degree of accuracy than a grower can estimate the production of his own fields.

Mr. HEFLIN. When was the last time it was overestimated?

Mr. ESTABROOK. Out of these 19 crops the bureau has overestimated 7 times and underestimated 12 times. In any year the chances are 2 to 1 that the bureau will underestimate rather than overestimate, and the overestimate was in 1916, as near as I can follow these lines, 0.4 per cent, less than half per cent.

Mr. JACOWAY. What were your overestimates or underestimates for each season, so that you can show the percentage?

Mr. ESTABROOK. Beginning back in 1912 we had 0.9 per cent overestimate. The next year, 1913, we had an underestimate of 3.4 per cent. In 1914 we underestimated the crop 1.1 per cent. That was a

year of big production. Nobody kept up with it. The next year, 1915, we underestimated 0.3 per cent. The next year, 1916, we underestimated 0.4 per cent. For the last two years, 1917 and 1918, we have been 3 per cent under, and that is largely because of the bolly cotton, the fact that the high prices have made it worth while to pick more closely than ever, and the fact that the early frosts which usually kill the plant have held off a little later than usual so that more has been picked than the farmers expected. I saw cotton being picked year before last as late as February and March.

Mr. HEFLIN. How do you figure the crop?

Mr. ESTABROOK. We estimate how much will be produced just as the farmer estimates. He estimates that it will be so much, and our estimate is the consensus of opinion of the growers themselves, plus the trained and experienced judgment of our field agents.

The CHAIRMAN. Is that all, Mr. Heflin?

Mr. HEFLIN. I believe that is all.

The CHAIRMAN. The Bureau of Census makes reports every year?

Mr. ESTABROOK. Yes; of cotton ginned, and those reports begin after the picking season begins, and are issued about twice a month, every 10 or 15 days during the picking season up until the middle of January, and the last report is issued about March 20.

The CHAIRMAN. It makes an annual report?

Mr. ESTABROOK. Yes.

The CHAIRMAN. What is the extent of that report?

Mr. ESTABROOK. It relates solely to one thing, cotton ginned, the number of bales, and for that they have got \$250,000 or more, for that one thing. The Bureau of Crop Estimates with its \$18,000 is expected to estimate the acreage planted, the condition, forecast the production, and estimate the yield per acre, and total production, and do all of those things.

Mr. JACOWAY. You have 70 crops, you say?

Mr. ESTABROOK. The \$18,000 relates only to cotton—to a \$2,000,-000,000 cotton crop.

Mr. HEFLIN. Where does the Bureau of Census get its funds?

Mr. ESTABROOK. That is another department of the Government. I understand it is \$250,000.

Mr. HEFLIN. Where do they get that appropriation?

Mr. ESTABROOK. From Congress, upon estimates of appropriation approved by the Appropriations Committee.

The CHAIRMAN. You say the appropriation is \$250,000?

Mr. ESTABROOK. That is my understanding.

The CHAIRMAN. What do they do?

Mr. ESTABROOK. They report the number of bales of cotton ginned.

The CHAIRMAN. How do they get the facts?

Mr. ESTABROOK. They employ a man in each county, as I understand it; a reporter at perhaps \$50 or \$75 a month for the picking season.

The CHAIRMAN. Do they get the information at the gin, at the farm, or where?

Mr. ESTABROOK. This information is a matter of record at the gin.

The CHAIRMAN. They simply take the record?

Mr. ESTABROOK. That is all they do.

The CHAIRMAN. That costs \$250,000?

Mr. ESTABROOK. Yes.

Mr. JACOWAY. Are you not a little wrong about that? One of the provisions is that the reporter has got to personally count the cotton ginned.

Mr. HEFLIN. He takes the gin report.

Mr. JACOWAY. You have to go to the gin, I think.

Mr. ESTABROOK. I did not intend to convey the impression—

The CHAIRMAN. Does he go to the gin?

Mr. HEFLIN. The farmer takes his cotton to the gin.

The CHAIRMAN. Does he stand there and count the bales?

Mr. HEFLIN. The gin reporter goes to the gin twice a month and gets this report.

The CHAIRMAN. They simply keep account of what is hauled to the gin?

Mr. HEFLIN. Every bit of it.

The CHAIRMAN. They do not go to the farm at all?

Mr. HEFLIN. There is no necessity of going to the farm, as the farmer hauls it all to the gin and the gin reporter makes his report from all the cotton ginned.

The CHAIRMAN. What do you do with the cotton?

Mr. ESTABROOK. Cotton is one of the many crops reported upon. The bureau begins in May with the condition report, showing the growing condition of the newly-planted crop. By law the bureau is required to report the acreage in cultivation on or about July 1, and condition reports and forecasts of production are made monthly thereafter, and in December the bureau estimates the yield per acre and total production for the year.

The CHAIRMAN. Who makes that report?

Mr. ESTABROOK. The Bureau of Crop Estimates.

The CHAIRMAN. How many reporters are there in each county?

Mr. ESTABROOK. We would estimate about 70 in each county if evenly distributed.

The CHAIRMAN. Seventy for each county?

Mr. ESTABROOK. That would be the average for the United States if they were equally distributed. In some counties there are not that many and in some counties there are more.

The CHAIRMAN. To whom do they report?

Mr. ESTABROOK. Either to the bureau headquarters at Washington or to the State field agents within the States, who in turn report to Washington.

The CHAIRMAN. That is your estimate?

Mr. ESTABROOK. These estimates are made monthly of the condition and prospective yield per acre and the production by States.

The CHAIRMAN. You report on cotton every month.

Mr. ESTABROOK. Every month from the beginning of May up to December except the month of November.

The CHAIRMAN. When you are through do you check it up with the ginner?

Mr. ESTABROOK. There is nothing more to be done except to compare it with the final gin report which is made about March 20 following.

The CHAIRMAN. Do you check it with that?

Mr. ESTABROOK. Yes; with the census, the final reports of cotton ginned as reported by the census, which is the total cotton crop produced the last crop season.

The CHAIRMAN. You have told us of the importance of this work. What do you propose to do with this money? Tell us briefly, so that we may have it in the record.

Mr. ESTABROOK. Briefly, we propose to employ in each State in addition to the present State field agents—

The CHAIRMAN. How many are now employed? How many extra men do you need?

Mr. ESTABROOK. We have about 42 field agents now in the United States, one in each State or in each group of smaller States. We propose to give to each of these men an assistant, an assistant field agent.

The CHAIRMAN. That doubles the force?

Mr. ESTABROOK. Yes.

The CHAIRMAN. What are you going to do?

Mr. ESTABROOK. We propose to do that, and we propose to put in the field agent's office an additional clerk.

The CHAIRMAN. That is three people in each State?

Mr. ESTABROOK. Yes. We propose also to employ a number of crop specialists, men who will specialize in particular crops.

The CHAIRMAN. What are they going to do?

Mr. ESTABROOK. A crop specialist is a man who is assigned not to a particular State, but to a particular crop.

The CHAIRMAN. One for oats, one for wheat, one for corn, and so on?

Mr. ESTABROOK. Yes; now we have some for apples, some for truck crops, one for cotton, one for tobacco, and one for rice. We propose to have one for corn, the greatest crop of all crops grown in the United States, and so on for other important crops and for live stock. That is what they will do. The crop specialist will devote his entire time to studying that one crop, studying the intricacies of that one crop, and collecting and summarizing, analyzing, and interpreting the statistics of that one crop.

The CHAIRMAN. What will he do throughout the country?

Mr. ESTABROOK. He will go and consult with the officials of the special growers' organizations who are interested in the particular crop. He will find out what they want, he will get their cooperation in securing information, he will go to the field agents, the State field agents in the different States where the crop is grown; he will give them the benefit of his expert knowledge of the technical side of that crop, the intricacies, the things to look out for. He will instruct them how best to obtain that particular sort of information, and he will coordinate all these agencies. He will secure cooperation of all State agencies that can help in any way in supplying information, and at bureau headquarters he will correlate all this information on a uniform basis, summarize it, analyze it, and prepare the results for publication.

The CHAIRMAN. What is the next step?

Mr. ESTABROOK. Of those crop specialists there will be about 40 or 50 additional ones.

The CHAIRMAN. Practically one for each State?

Mr. ESTABROOK. In addition to the State field agents, a specialist for each particular crop. They will be out in the field mostly during

the growing season. After the growing season is over they will be brought into the Washington office and there they will work up and correlate and summarize all this information from all sources, so that when information is called for with respect to live stock, say, the live-stock specialist will be the man to supply it.

The CHAIRMAN. You will have specialists in live stock?

Mr. ESTABROOK. Yes. Then we expect to enlarge the organization. We will have more reporters; we expect especially to build up special lists of men who are engaged primarily in growing a particular crop, who know all about that crop, and constitute the best source of information concerning it.

The CHAIRMAN. You have 215,000 of them?

Mr. ESTABROOK. Yes.

The CHAIRMAN. How many more?

Mr. ESTABROOK. That will depend on circumstances, how many will be found necessary, but the idea is to get men who know what they are talking about. After we build up these lists and we have more data coming in we must have sufficient force to tabulate the returns and we will need additional clerks to do that tabulating work. We will also need to employ some statistical specialists to summarize and make available to the public a mass of statistical material now in the bureau and material collected in future, which is of great practical value. That is about the sum and substance of what the increase in the appropriation is for.

The CHAIRMAN. Does that take in all the organization?

Mr. ESTABROOK. That is approximately the increase in the organization. We now have the field agents. We now propose to put in assistant field agents and competent clerks to assist them.

The CHAIRMAN. Who makes these estimates?

Mr. ESTABROOK. Then we propose to employ crop specialists, experts, the best that can be obtained. Then we propose to employ additional clerks to handle additional returns, and statistical specialists to summarize and properly present the essential facts of production and supply.

The CHAIRMAN. Who estimates the crop?

Mr. ESTABROOK. The 215,000 or 500,000 individual farm reporters we now have or may have will estimate for their individual farms, and our trained field agents and crop specialists.

The CHAIRMAN. Who are the 500,000?

Mr. ESTABROOK. I say if we enlarge this service, the number may be 500,000. The bureau already has the names of about 1,500,000 farmers in addition to its regular reporters. They will report to the department and to the field agents. They estimate, so far as they can themselves, for their own farms and the farms of their neighbors. The trained field agents, and the assistant field agents and the crop specialists, will also be estimating on their own account, because they are trained judges of crop and live-stock conditions, and they will interview the best-informed men in every community and get the benefit of their judgment and observation, and we expect—

The CHAIRMAN. But, after all, those who make the examination are these 215,000?

Mr. ESTABROOK. Not altogether. So far as we know there may be 500,000 men, and in addition we will have our own specially trained

agents, and we will utilize all other agencies and sources of information that may be available.

The CHAIRMAN. These 500,000, or whatever the number is, are the farmers; they are the owners?

Mr. ESTABROOK. The 500,000 will not all report to the bureau, but some of them to the field agents.

The CHAIRMAN. Let us confine ourselves to one thing. Who makes the estimates?

Mr. ESTABROOK. Examination is made by the crop reporters, by the field agents, by the crop specialists, and the—

The CHAIRMAN. The examination made by the specialists must be very limited, because you have only one to a State; but the men who do the work, make the examination and the report are these 215,000, or whatever the number is?

Mr. ESTABROOK. The crop reports in the counties in each congressional district will be based on the observation, experience, and judgment of the farmers in the community.

The CHAIRMAN. It will be based on the farmers' reports.

Mr. ESTABROOK. Exactly.

The CHAIRMAN. It is based upon the farmers' reports and the reports of the specialists who travel over the State?

Mr. ESTABROOK. Yes.

The CHAIRMAN. That is exactly as you have done in the past?

Mr. ESTABROOK. In a limited way.

The CHAIRMAN. In what way does that differ from the past? You simply add an assistant to what you have to-day?

Mr. ESTABROOK. Yes.

The CHAIRMAN. You propose now to employ the same 215,000 and you may add others?

Mr. ESTABROOK. Yes; I would like, Mr. Chairman, to mention one phase of the bureau's work that has not been touched upon to-day.

The CHAIRMAN. First let us get at this estimate.

Mr. ESTABROOK. This estimate is involved in it. That is the utilization of the local assessors in various States to make an annual census of acreage and numbers of live stock.

The CHAIRMAN. In my State—and I presume it is so in other States—the assessor goes around every year and takes an invoice for assessment. The statements are made under oath. I was going to suggest that that would probably be more reliable than anything you could get by these reports.

Mr. ESTABROOK. But your presumption that that is true in other States is not correct. You are mistaken in believing—

The CHAIRMAN. Are they not given under oath?

Mr. ESTABROOK. You are mistaken in believing that the assessors do collect that information in all other States. I am speaking for the United States. In certain States in which we have cooperative relations that matter has been taken up. Recently we have entered into cooperative arrangements in 15 States where we have combined forces. In Wisconsin, where we have this cooperative arrangement, and where the law requires that the assessors shall collect these data, that information was collected and sent to the Secretary of Agriculture, and the Secretary of Agriculture turned it over to

the Wisconsin field agent, who checked them up, and has been checking them up annually since. By enlisting the interest of State officials and issuing proper instructions to assessors, the system has been brought up and perfected until we have a census that is 99.9 per cent correct and much better than any decennial census that can be taken. But the essential thing, Mr. Chairman, is the checking up by the trained field agents. Why, sir; out of 1,600 townships there were only a few that were added correctly.

The CHAIRMAN. In the census?

Mr. ESTABROOK. No; in these township assessors' returns. That is why I say it is important for the trained man who knows—

The CHAIRMAN. Do you propose to go to the assessor's office to check over the books and make reports?

Mr. ESTABROOK. We propose to have those available to our field agents in some manner, through cooperation. We have no authority over the State and do not desire any. But we do desire to have these data. We do desire to develop that machinery, the State machinery. It is for the benefit of the State to do it, and it gives us the accurate data, the accurate basis which we need.

The CHAIRMAN. If the department should request the State assessors to give those data, would not every one of them respond?

Mr. ESTABROOK. Not 10 per cent. We have tried it. It has got to be done by a careful following up of the returns. We have met with such success in this field that we have tried to encourage the same idea in other States, and we met with such success that the last legislatures in 30 out of 48 States revived or amended old laws or passed new laws providing for the collection of data in this manner. That is one of the most constructive things the Bureau of Crop Estimates has done in recent years. If it is followed up, as it will be, we will have an annual census that is better than a decennial census.

The CHAIRMAN. They are taking the census this year?

Mr. ESTABROOK. Yes.

The CHAIRMAN. Just at the time when we are taking the census, spending millions of dollars, you ask for an increase of \$550,000 to duplicate, or what seems to be duplicating, what is to be done by the census.

Mr. ESTABROOK. Not at all.

The CHAIRMAN. We will admit that everything you have suggested is an estimate.

Mr. ESTABROOK. The duplication, if there is any, so far as it occurs in the census has already taken place, because the census relates to 1919. We are now in 1920 and the census data will only relate to 1919. Those are the last data you will get out of the census for 10 years. What are the farmers and the business men of the country going to do in the meantime?

The CHAIRMAN. Remember the States do some. Some States have a census just as often as the Federal Government.

Mr. ESTABROOK. But you must remember, Mr. Haugen, that the same conditions do not prevail throughout the United States as prevail in Iowa. The system is different in almost every other State and this information to be of much or any value must be comparable. It must be on a uniform basis. It must be country wide.

The CHAIRMAN. Are not practically all the States taking a census every 10 years?

Mr. ESTABROOK. Every 10 years we have a decennial Federal census.

The CHAIRMAN. I know; I am speaking about the States.

Mr. ESTABROOK. No; absolutely not.

The CHAIRMAN. How many do?

Mr. ESTABROOK. I could not say, offhand, but I am certain that not more than 8 or 10 out of the entire United States take a census of any kind.

The CHAIRMAN. All that you contend for your system is that you simply furnish estimates? It is different from the census in that respect?

Mr. ESTABROOK. We do not claim that it is anything but an estimate. To take a census would cost \$10,000,000, and it would take two or more years to compile the information, and for all practical purposes it would be utterly useless when we got it. It would be purely historical. The Bureau of Crop Estimates is simply an organization and a system that gets out statistics that are often accurate to within 1 per cent at a very low cost.

The CHAIRMAN. It has been suggested by a member that it should be done by the county agents. It is not clear to me why it should not be done by them—why these county agents could not do it without materially interfering with their other work. It seems to me that the county agents, with an office and other help—even if we have to give them more help—could do this work better and more economically than anybody else and that by thus cooperating, considerable money could be saved. If it were necessary, some specialist could be sent out to check them up. They would not have to compile these reports. That could be done by experts and statisticians. But in gathering the information it seems to me that the county agent is the proper agency through which to gather it.

Mr. ESTABROOK. That, of course, is a branch of the service which is not now a part of the Bureau of Crop Estimates.

The CHAIRMAN. County agents are through the county all the time; they come in contact with the farmers, visit them, and know their names. No one in a county can be better informed of the conditions in the county than the county agent.

Mr. ESTABROOK. They are utilized as far as it is possible to do so.

The CHAIRMAN. They select the names of a few farmers. That does not go very far.

Mr. ESTABROOK. The field agent gets the best judgment and the best information that the county agents have.

The CHAIRMAN. Just the same as the elevator man or the merchant?

Mr. ESTABROOK. No, sir.

The CHAIRMAN. I take it they would confer with anybody that gives information. It does not matter the source.

Mr. ESTABROOK. An interested county agent, a competent county agent, one who really has a head on him and knows what he is talking about, will sit down with the field agent and will give him all the information he has got, and the field agent will draw out of him all the information that the county agent has, and that information

will be recorded in the field agent's notes and will be used in making up the monthly estimates. We now utilize them to the fullest possible extent to which they are made available. If the county agents were turned over to the Bureau of Crop Estimates, we could keep them busy day and night and Sundays and holidays on this work alone. The reports that come to us are that the county agents are overburdened, and they have not time to make crop reports. We would be glad to utilize them far more extensively if they had the time and were made available.

The CHAIRMAN. Have you any further statement to make?

Mr. ESTABROOK. I was prepared to discuss each item of the printed estimates, if you care to go into the details.

The CHAIRMAN. Is there any object in discussing each of the items?

Mr. ESTABROOK. I will leave that entirely to you, sir. If you have no questions to ask—

The CHAIRMAN. I want to leave that to you. We want complete information. If you have more information that we ought to have, we will be glad to have it; you certainly have gone over it in detail and in a comprehensive way.

Mr. ESTABROOK. The bill is itemized and, if taken in connection with this program, shows precisely what we propose to do with each of these groups of crops. From them you can arrive at a clear understanding.

However, I do want to ask the committee one thing, and that is in considering these salary items to divide each one by two to make it comparable with the prewar basis.

The CHAIRMAN. What salary have you reference to?

Mr. ESTABROOK. Any salary. Divide by two the salary of the chief of the bureau, for instance, which is \$4,000. To find what it is worth as compared with 1914, divide by two.

The CHAIRMAN. I take it the salary proposition is a matter that should be considered by taking into consideration the whole department.

Mr. ESTABROOK. Surely. I have no personal object in mentioning that particular salary. It might be any salary.

The CHAIRMAN. How do the salaries paid by your bureau compare with the salaries paid by other bureaus?

Mr. ESTABROOK. I think the salaries are somewhat less than other bureaus, considerably less than the salaries in the Bureau of Markets. The average salary of field agents is about \$2,100, although they are well worth from \$3,500 to \$5,000. We have lost a number of men since July.

The CHAIRMAN. He gets traveling expenses and subsistence.

Mr. ESTABROOK. Yes; but at present it costs more than the Government can reimburse to him.

The CHAIRMAN. How does that salary compare with salaries paid in the census for similar work? This is more specialized, is it not?

Mr. ESTABROOK. Ours is more specialized. The salaries in the Bureau of Crop Estimates will run low because we started low. We started on the wrong basis. I started with the idea that the new men ought to be started at \$1,600, and if they did not develop they would not be promoted. That has been slowly increased in six years to an average of \$2,100.

The CHAIRMAN. Some of the salaries in this list are \$3,700.

Mr. ESTABROOK. Those are the highest administrative officers who are all underpaid.

The CHAIRMAN. In your opinion, then, what is the discrepancy between salaries paid by your bureau and those prevailing in other bureaus?

Mr. ESTABROOK. I should say it would be 20 to 50 per cent. Our \$2,000 men are comparable with the men who get \$2,600 to \$3,600 in other bureaus.

The CHAIRMAN. Is there something else that you want to bring out?

Mr. ESTABROOK. No; I think not, at this late hour.

The CHAIRMAN. Have you not discussed all these items quite extensively?

Mr. ESTABROOK. I have simply outlined in a general way the proposed program, the proposed expansion of the service, the importance of the service, and how it will benefit farmers and other classes of people. Now, it seems to me that the estimates as they appear here are self-explanatory. There is sufficient information here to enable you to arrive at a correct conclusion, bearing in mind what I have said in a preliminary way.

The CHAIRMAN. If this statement regarding your enlarged program is printed in the record, that will give all the information necessary, will it not?

Mr. ESTABROOK. Yes, sir.

The CHAIRMAN. We are very much obliged to you, Mr. Estabrook. (Thereupon, at 6 o'clock p. m., the committee adjourned until Wednesday, January 7, at 10 o'clock a. m.)

COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES.
Wednesday, January 7, 1920.

The committee met at 10 o'clock a. m., Hon. Gilbert N. Haugen (chairman) presiding.

The CHAIRMAN. We have with us this morning, Mr. Moon. We will be pleased to hear you, Mr. Moon.

BUREAU OF CROP ESTIMATES—Continued.

STATEMENT OF MR. J. EDWARD MOON, PRESIDENT OF THE AMERICAN ASSOCIATION OF NURSERYMEN.

Mr. MOON. I represent, gentlemen, the American Association of Nurserymen, of which this year I happen to be president. This is a national association of nurserymen throughout the United States with a membership that includes California, Minnesota, Texas, and the Atlantic seaboard, having about 395 members, and the largest nurseries in the country are represented.

We are interested this year in two appropriations asked for in the department's budget. We have never been before this committee to ask any assistance, in a financial way, and the industry has, of

course, been in America since prerevolutionary days. But we have, in the last year, suffered a condition which I ask you to help us to remedy, and that is the condition brought about by the Quarantine Order No. 37, with which I know you are all familiar. That imposes a great responsibility on the nurserymen for propagation. Heretofore we could go to foreign countries and get any supplies of which we were short in this country; but now we must produce them here, with the exception of a few raw materials that can be brought in under restrictions and permits.

Mr. McLAUGHLIN of Michigan. Have you a copy of that order with you?

Mr. MOON. No, sir; I have not. It is well known, however, and can be produced if you wish it.

Mr. MOON. The first item to which I wish to speak myself is one for gathering crop reports, which, I understand, Mr. Estabrook touched on yesterday. The other is what has heretofore been known as the Gould bill, about which our executive secretary, Mr. Watson, will speak, as he is better posted on that subject than I am.

Crop reports to the nurserymen are very vital. We have maintained two associations to collect them ourselves, one in the Central West and one among the growers of ornamental stocks. These efforts have been only partially successful, because we have no way of collecting statistics outside of our membership, and our membership is limited. We are called upon now to produce nursery stock that is going to take us from 3 to 10 years to manufacture, and in the case of the boxwood and rhododendrons—may be 15 years to do it. We feel, therefore, in order to interest capital in the propagation of those plants and to enter on it in any scale that is adequate to meet the demands of this country, we ought to have crop reports that will show us at all times what there is in the nurseries of this country of the different items that are basic or standard in the industry. And if we had such information we would know in any one year what to propagate in order to meet a normal demand, and, when we have a turnover of 8 or 10 years, you can see how vital it is to know when the seed is sown that there is not several million ahead of it or several million shortage, in which case we would plant accordingly. That is our great need for these statistics.

You have gathered them for the farmers in fruit. The fruit orchardist has a turnover every year and we do not have it as frequently; yet our need is just as great. This is a new item you never had before and it is made necessary, in our opinion, by this quarantine order. We realize that you are endeavoring to keep down the budget and to save expense which, as taxpayers, we appreciate; yet we do think new conditions bring about new requirements.

That, gentlemen, is all I have to say about this item, except as evidence of our earnestness for it we have called personally on Mr. Hutchinson, who is a neighbor of mine, and stayed here in Washington to get this opportunity and are really serious about it. Now, Mr. Chairman, if Mr. Watson might speak to this other item, he is here to do so.

Mr. McLAUGHLIN of Michigan. I would like to ask a question or two: You say you have three associations composed of nursery-

men throughout the country. Does this number include all the nurserymen in the country?

Mr. MOON. The American Association is the national association. The other two I mentioned are the Ornamental Growers' Association, which includes 40 firms that grow ornamental stock entirely, and the Western Association, that has a membership up and down the Mississippi Valley and includes some 75 nurserymen. A great many of them are around Shenandoah, Iowa, down through Kansas and in Texas. There are different State associations, too.

Mr. McLAUGHLIN of Michigan. Do you not ask and require of your members to report on what they are doing?

Mr. MOON. These two associations do make that requirement, but they cover 75 in the Western and 40 in the other—about 120 nurseries.

Mr. McLAUGHLIN of Michigan. Together, these associations include practically all of the nurserymen of the country?

Mr. MOON. No, sir; the census of 1910—

Mr. McLAUGHLIN of Michigan. What proportion of them?

Mr. MOON. The census of 1910 gives 4,500 nurseries, I believe, in the United States. Of course many of those are allied florists.

Mr. McKINLEY. How many are there in your national association?

Mr. MOON. Three hundred and ninety-five. That includes this 120 which are in the sectional associations.

Mr. McLAUGHLIN of Michigan. Can not your associations ask and require the reports you are asking for some Federal authority to gather for you?

Mr. MOON. We can from the 395 people.

Mr. McLAUGHLIN of Michigan. In the one association; how about the other?

Mr. MOON. The two are merged together. I mean the sectional associations are all included in the national.

Mr. McLAUGHLIN of Michigan. Your associations include all the principal ones or the most of them, do they?

Mr. MOON. The 395 nurseries by no means include the majority of the nursery stock, because there are quantities held in small lots around the country.

Mr. McLAUGHLIN of Michigan. Another thing: I presume, when additional appropriations are asked, there will be some suggestion from those who ask them as to how we are going to get the money to meet them. I understand we are facing a deficit of some \$3,000,000,000.

Mr. MOON. That is true; but, as I say, this industry has, by the order of the department, had a responsibility placed upon it which it has never before had and, under those conditions, we feel we should have assistance from our Federal Government to help us in the security of growing our products. We have the hazards of the insect pests and we have the hazards of the weather conditions, all of which are trying enough; but we do feel we should have the stabilizing influence of statistics.

Mr. McKINLEY. Mr. Moon, how does it happen that only 395 out of 4,500 nurserymen belong to your association?

Mr. MOON. That is all that have joined the national association. That represents a majority of the acreage. If you know national

associations, there are always a lot who do not join and take the benefits which the leaders in the industry get. In the nursery industry a great many nurserymen have less than 10 acres of land; but we have in this membership practically every nurseryman in the United States operating over 200 acres of land and some 1,000. There are 175,000 acres devoted to nursery products, according to our best information.

Mr. LEE. In the entire country?

Mr. MOON. Yes; these little men have heretofore largely gotten their products from the European sources, and those of us who have been producing are now called upon to supply them in addition to our regular trade. You see, we are in a chaotic state, with our raw material shut off, except from stocks of roses.

The CHAIRMAN. Thank you, Mr. Moon.

(Thereupon the committee proceeded to consider another matter.)

COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Saturday, December 20, 1919.

The committee met at 10.30 o'clock a. m., Hon. James C. McLaughlin presiding.

LIBRARY.

Mr. HARRISON. Miss Barnett is here and will present the estimates for the library, which appear on page 208 of the Book of Estimates.

**STATEMENT OF MISS CLARIBEL R. BARNETT, LIBRARIAN,
DEPARTMENT OF AGRICULTURE.**

Mr. McLAUGHLIN of Michigan. You have a statement, I presume, you wish to present first?

Miss BARNETT. Yes, sir.

Before discussing the library estimates in detail I should like, with your permission, to make a general preliminary statement about the library and its work, in order that the needs of the library may perhaps be better understood.

The library of the Department of Agriculture is a scientific and technical one. Its collections now number approximately 150,000 books and pamphlets, constituting what is without doubt the largest agricultural library in the world. The subjects which it covers are the matters under investigation by the department. It follows, therefore, that it is particularly strong in agriculture and all its branches and in the literature of all the sciences pertaining to agriculture, such as botany, entomology, zoology, chemistry, veterinary medicine, and forestry. Its statistical collections also are extensive and valuable.

The emphasis of the library is on the utilitarian side. It does not purchase books which are of interest because of their rarity unless they also have scientific or historic value. The resources of the Library of Congress and other Government libraries are always taken into account, our policy being to avoid unnecessary duplication. While there is no official connection between our library and the Library of Congress, there is close cooperation, and the fullest use is made of the resources of the Library of Congress. In the building up of our collections our library may be said to be administered as a branch of what has been called the "National Library," consisting of the Library of Congress and the special collections in the various departments and bureaus of the Government. In other words, it has

seemed wise to administer the library, not as an independent unit, but as a part of the system of Government libraries, of which the Library of Congress is the center, and to adopt a broad policy looking toward the increase of the sum total of scientific literature in Washington to be used for the benefit of the whole Government service and the country at large. With all its great resources, it is impossible for the Library of Congress to care for all the special needs of the various departments. Its resources must be supplemented by the libraries close to the work of the departments and bureaus. The library of the Department of Agriculture is trying to do its full share for the subjects covered by the department.

While the library exists first of all for the benefit of the department, it is free for reference to any who wish to use it. The use of its books by other institutions in and out of Washington is increasing from year to year. During the war there was a greatly increased use of the books by other Government departments, especially by the new offices, such as the Food Administration, the War Trade Board, and the War Industries Board. Without the use of our collections, some of their investigations would have been greatly hampered. A large number of books also are lent to institutions in every State of the Union, to the various State agricultural colleges and experiment stations in particular, and to other institutions engaged in agricultural research. In addition to the service rendered by the use of its books, the library endeavors to serve to some extent as a bureau of information about agricultural literature. In general, it aims to make its resources, its equipment, and the services of its staff as widely useful as possible. While the library endeavors thus in a broad way to take on the functions of a national agricultural library, its main reason for existence is, of course, its usefulness to the department. Its importance in the work of the department can not be too strongly emphasized.

If the library is weak or inefficient because of inadequate resources, or by reason of an insufficient or poorly trained staff, the work of the department is bound to suffer, for an adequate and well-equipped library is as necessary to the scientific investigator as is his laboratory. The library must grow with the growth of the department. During the past three years there has been no change in the library's appropriation either for salaries or for the general expenses of the library. In the meantime the department has expanded very materially and has taken on new lines of work. There has also been a corresponding increase in the demands upon the library. On the other hand, due to the war, there has been a decrease, economists tell us, and we experience it on all sides, of nearly a hundred per cent in the purchasing value of the dollar, which has made all the salaries most inadequate and has also, in effect, decreased to a large extent the amount of the appropriation available for the purchase of books and periodicals.

There are on the library roll now a number of assistants who have rendered most faithful and efficient service for 10, 15, and 20 years, who, as far as the purchasing power of their salaries is concerned, are getting less to-day than when they entered the library. This is a condition which does not make for efficient service.

I do not presume to say that our experience is unique, but I believe it is true that the library has suffered more than many offices since

its salaries are practically all statutory, which has made it impossible to meet the changed conditions through the appointment of new assistants at higher entrance salaries, and, furthermore, even before the war the salaries of the library employees were most inadequate. While the wording of the appropriation makes it possible to carry salaries on the appropriation for the general expenses of the library, we have been loath to do this because it would decrease the funds for the purchase of books and periodicals, which funds are inadequate, and because the library appropriation is the only department appropriation which can be used for the purchase of books and periodicals for use in Washington.

Possibly I have spoken at too great length in regard to salaries in general when the estimates, in accordance with the instructions of the Secretary of the Treasury, provide for no promotions because of the proposed reclassification of all Government salaries. In justice, however, to the staff, to the library, and to the department, it seemed necessary to point out how great the need is for a general increase in all the library salaries if the department is to retain the services of those who are well qualified by reason of education and training and years of experience in the library to perform the service which users of the library have a right to expect from the library.

I will now explain briefly the few changes in the statutory roll as shown in the estimates. These call for an additional clerk at a salary of \$1,400 and one at \$1,200, the latter by transfer from the lump fund. Both of these positions are needed on account of the growth of the department and the increased demands upon the library. The salaries requested are inadequate but for assistants they could not very well be made higher if they are to fit in with the present salary schedule, as the assistant librarian, for example, receives only \$1,600.

It is recommended that the position of messenger boy at \$480 be dropped on account of the difficulty in the past year or two of getting satisfactory service at this salary. As stated in the estimates, the position has been vacant for some time.

An additional charwoman at a salary of \$600 is recommended on the statutory roll by transfer from the lump sum. This charwoman puts away the books on the shelves and keeps the shelves in order. It has been found more satisfactory to have this work performed by a mature and responsible charwoman than by an immature and perhaps less reliable messenger boy.

The apparent increase in salaries is \$2,720, but deducting the two places which are at present carried on the lump sum, the actual increase is only \$920.

In the estimates for general expenses there is an apparent increase of \$8,200, but taking into consideration transfers to the statutory roll amounting to \$1,800, the actual increase is \$10,000. This amount, as stated in the estimates, is recommended in order to provide additional library facilities made necessary by the growth of the department and the inauguration of new lines of work and to meet the increased cost of books, periodicals, and library equipment. During the past five years many of the library's files have been broken on account of the difficulty of getting books from foreign countries. To be able to complete them the library must have greatly increased funds. Dictionaries, atlases, directories, and subscriptions

to periodicals have to a very large extent increased in price from 10 to 25 per cent and even more. Still another reason for this increase, which is considerably larger than the increases requested in previous years, is the opportunity which, it is believed, will be presented in the near future for the purchase of many rare foreign scientific books. These are likely to come upon the market due to war conditions, and the department should be in a position to purchase such as are needed to strengthen its collections.

In conclusion, may I point out again that there has been no increase in the library's appropriation for books in the past three years, and that at no time has the library's appropriation kept pace with the growth of the department. The department is frequently referred to as the greatest scientific and educational institution in the world. In a corresponding way the library should also be pre-eminent in the completeness of its collections and the quality and extent of its service. It is hoped that the library may have your support to this end.

Mr. McLAUGHLIN of Michigan. Is there any other bureau or branch of the department that has authority itself to buy books?

Miss BARNETT. Not for use in Washington.

Mr. McLAUGHLIN of Michigan. Your library fund is the only one, then, to be drawn on for any books?

Miss BARNETT. Yes, sir.

Mr. McLAUGHLIN of Michigan. How about magazines and periodicals?

Miss BARNETT. No office has authority to purchase books or periodicals but the library, except for use in the field—outside of Washington.

Mr. McLAUGHLIN of Michigan. You speak of additional facilities that will be added. What is the character of those facilities?

Miss BARNETT. Next year we will have to buy some additional stacks for the library.

Mr. McLAUGHLIN of Michigan. How much do you propose to use for that?

Miss BARNETT. I have not had any detailed estimate for them. They are expensive—the steel stacks.

Mr. McLAUGHLIN of Michigan. What other facilities?

Miss BARNETT. We may have to spend a part of that sum for salaries, too, because it is impossible at the present time to get—

Mr. McLAUGHLIN of Michigan. You spoke of facilities. I supposed that meant furniture, fixtures, and something of that kind. You have mentioned steel stacks; what other item in the nature of facilities do you have in mind?

Miss BARNETT. No others that will cost very much. Of course, all supplies cost more now.

Mr. HARRISON. The greater part of the increase will go for books, and it is not contemplated now that any portion of it will be used for increased salaries. It may be necessary, however, to make some new appointments, but this will, of course, depend upon the needs of the service.

Miss BARNETT. Most of the increase will be used for books and periodicals.

Mr. HARRISON. For books and periodicals; the other items are relatively small.

Mr. McLAUGHLIN of Michigan. Your answer would indicate part of the lump sum will be used for increase of salaries and part of it for books. Can you tell how much?

Miss BARNETT. As Mr. Harrison says, the bulk of it will go for books and periodicals. That being the only fund for the purchase of books, we wish to conserve it for that purpose as much as possible. We have made no provision in these estimates for increases in salaries.

Mr. McLAUGHLIN of Michigan. The larger part, you say; what part? Can you give us an idea how much will be used for salaries and how much for books?

Miss BARNETT. I estimated that it may be necessary to spend about \$3,000 for salaries and about \$22,000 for the books.

Mr. McLAUGHLIN of Michigan. You do not mean \$3,000 increase, do you, in salaries on the lump fund?

Miss BARNETT. I estimated that about \$3,000 of the total lump fund would be used for salaries.

Mr. HARRISON. Mr. McLaughlin, perhaps the table on page 209 will clarify the situation.

Mr. McLAUGHLIN of Michigan. The difference there is \$750.

Mr. HARRISON. \$750, but you will note that no provision has been made for any increase in salaries. You will note there were two employees at \$1,400 in 1919 and that we have estimated for two at the same salary in 1921. Then we had one temporary employee at \$660 in 1919. We have dropped this place in the 1921 estimates. We have estimated for one employee at \$480 in 1921, while we had two at that salary in 1919.

Mr. McLAUGHLIN of Michigan. But when we have tried to compare those two columns, 1921 and 1919, in other cases, we have been told that there was an intervening year there so that the comparison between those two years is not continuous, you say, and they do not furnish us with very much information.

Mr. HARRISON. That is true, but the comparison between these two columns will, nevertheless, in this particular case, show that there has been no change in the salaries during the current year and that we do not contemplate now any change in the salary roll during the next fiscal year, the difference between expenditures in 1919 and the estimate of the expenditures for 1921 being due to the fact that the employees in 1919 were carried on the roll only part of the year. Their salaries were not a charge against the appropriation throughout the year, and therefore the expenditures were naturally less than the estimate for 1921, because the latter is based on the assumption that the employees indicated in the table will be carried on the roll every month of the year.

Mr. McLAUGHLIN of Michigan. There were individuals who were employed from time to time, and there was somebody in each one of these positions all of the time, was there not, during 1919?

Mr. HARRISON. No; in these cases they were all temporary; they were merely employed for brief periods.

Mr. McLAUGHLIN of Michigan. Each one was temporary while he was employed, but the places were filled all the time, were they not?

Mr. HARRISON. I do not have the details in mind, but it is possible, for example, that one of the \$480 employees served during the first

three months of the year, while the other served during the last three months.

Mr. McLAUGHLIN of Michigan. And you might have had them for one month or six months?

Mr. HARRISON. Yes. I have not the details; perhaps Miss Barnett will remember them.

Mr. McLAUGHLIN of Michigan. The amount is very small. I do not think it will be necessary to spend very much time on it. That would leave about \$9,254 for books and the appliances and facilities that you speak of, would it not?

Miss BARNETT. You mean—

Mr. McLAUGHLIN of Michigan. \$750 is for salaries and \$9,254 would be available for other things. If you buy no additional fixtures the entire amount will be available for books?

Miss BARNETT. Yes, sir.

Mr. McLAUGHLIN of Michigan. You say there has been no increase in the appropriation available for books since when?

Miss BARNETT. In the last three years the appropriation for the library has been the same.

Mr. HARRISON. The table on page 209 indicates that. You see that there was a slight increase in 1917—from \$16,300 to \$18,000—and that there has been no change in the appropriation since then.

Mr. McLAUGHLIN of Michigan. And during this year, how much have you spent for books?

Miss BARNETT. We spent between \$14,000 and \$15,000 in the fiscal year 1919.

Mr. McLAUGHLIN of Michigan. Is this library all in one place or scattered to some extent?

Miss BARNETT. It is scattered and has branches in the various bureaus.

Mr. McLAUGHLIN of Michigan. Does that make necessary the employment of some one at each place to take care of the books you have at that place?

Miss BARNETT. Yes, sir.

Mr. McLAUGHLIN of Michigan. Is that necessary? Could not the head of the bureau, or some one in the bureau, take charge of the books that are in his bureau?

Miss BARNETT. It really is necessary to have a librarian in charge of each library.

Mr. McLAUGHLIN of Michigan. The force does not seem very large. Of course, the whole thing is not very large as to the number of employees. Are there any other questions?

Mr. PURNELL. It would not be practicable to consolidate all of these libraries at one point, would it?

Miss BARNETT. As long as the department is so scattered, I am afraid not.

Mr. PURNELL. Would it result in any material reduction or saving if it were practicable?

Miss BARNETT. Yes; I think it would. It requires more service when it is scattered.

Mr. HARRISON. There are two difficulties in the way of consolidation, Mr. Purnell. One is the lack of adequate quarters for a single central library—at present the main library is very much crowded for

space. The other is the distribution of the units of the department all over the city. As I explained the other day, we occupy something like 42 different buildings in the city of Washington.

Mr. McLAUGHLIN of Michigan. Where is the main library?

Mr. HARRISON. It is located in the Bieber Building, the building in which the Bureau of Markets is located. The library is on the first floor of that building. It was formerly in the main building of the department, the red-brick building, in which the Secretary's office is situated.

Mr. McLAUGHLIN of Michigan. I knew it when it was there, but I have not followed its movements.

Mr. HARRISON. The space formerly allotted to the library in the main building is now occupied by the Bureau of Crop Estimates. The library was transferred to the Bieber Building when that structure was erected.

Mr. PURNELL. How extensive a library would you have if they were all combined? I am asking for information.

Miss BARNETT. We have 150,000 books and pamphlets.

Mr. PURNELL. Are they consulted frequently?

Miss BARNETT. Yes; they are. I think the department could not very well get along without a library.

Mr. PURNELL. I would not want to advocate the abolition of the library, but I was wondering whether or not it might not work out to advantage if they were combined at one point and have the distribution at one place?

Mr. McLAUGHLIN of Michigan. I was thinking there might be somebody in each office where the branch library is located to take care of the books at that place and not make it necessary for some one from your office to be at each one of these places, and in that way it would leave more money for the purchase of books and not so much for the care of them.

Miss BARNETT. Each bureau requires special library service. You see the subject matter with which each bureau deals is quite different, and the librarians in charge of the various branches also do a great deal of work other than their library work; that is, work in which their library training is an advantage. For instance, some help in the editorial work, some spend part of their time in indexing correspondence, and some look after the distribution of the publications of the bureaus. But principally they do reference and bibliographical work for the bureaus. I think each bureau needs this special service.

Mr. McLAUGHLIN of Michigan. You have given that matter careful thought and have concluded that the best way is as you are doing it now?

Miss BARNETT. If the offices of the department could be together, I think one central library would be a great advantage; but, as Mr. Harrison says, with the buildings scattered as they are at present, I think the bureau libraries are necessary.

Mr. McLAUGHLIN of Michigan. Did you mention the number of branch libraries?

Miss BARNETT. We have 13.

Mr. PURNELL. I presume the books kept at any one point are peculiarly adaptable to the work carried on that point; is that true?

Miss BARNETT. Yes; they are.

Mr. PURNELL. Are these books at one point consulted frequently by other departments?

Miss BARNETT. Yes; we have to borrow from the various branches.

Mr. PURNELL. How do you get those books? Suppose one department wants to use the books at another place, how do you get those books?

Miss BARNETT. We maintain in the main library a complete record of all the resources of the department; that is, in the way of books and periodicals; and if one office calls for a book we can immediately tell, from our records, whether we have it, and then, from our records, where it is. We either telephone, or send a written request if it is not needed in haste, and the book is brought back to the main library and then sent to the office that called for it.

Mr. HARRISON. For example, Mr. Purnell, if the Secretary's office desires a particular book, it makes a request on the main library, and the main library secures the book, no matter where it may be located, and sends it to us.

Mr. PURNELL. It will find out the place where it is located and send and get it?

Mr. HARRISON. Yes; the library knows where it is located, and it gets the book and sends it to our office.

COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Friday, December 19, 1919.

AFTERNOON SESSION.

Hon. Gilbert N. Haugen (chairman) presiding.

MISCELLANEOUS EXPENSES.

STATEMENT OF MR. R. M. REESE, CHIEF CLERK, DEPARTMENT
OF AGRICULTURE.

The CHAIRMAN. Who do you have next, Mr. Harrison?

Mr. HARRISON. There is another item on page 210—"Miscellaneous Expenses." It is a very short item and will take only a few minutes.

The CHAIRMAN. That is the item for stationery, blank books, twine, paper, gum, dry goods, soaps, brushes, brooms, etc., and the amount is \$141,000.

Mr. REESE. There is a decrease in this item of \$34,500, due to the omission of \$33,000 for repairs to the power plant, which repairs will be completed during the fiscal year 1920, and the transfer to the Division of Publications of \$1,500, heretofore allotted from this appropriation for the purchase of envelopes and miscellaneous supplies in connection with the informational and exhibit work of the department, which it is proposed to merge with the Division of Publications. In other words, the miscellaneous supplies required in connection with the informational and exhibit work has been carried in this appropriation because it was a part of the secretary's

office. In the consolidation of those various lines of work, we merely transfer the \$1,500 to the Division of Publications, and this appropriation is reduced accordingly.

I have nothing further to add in regard to "Miscellaneous expenses," unless the committee has some questions they desire to ask.

RENT IN THE DISTRICT OF COLUMBIA.

The CHAIRMAN. The next item is on page 211, "For rent of buildings and parts of buildings in the District of Columbia, for use of the various bureaus, divisions, and offices of the Department of Agriculture, \$150,000: *Provided*, That only such part of this sum shall be available to pay rent for space which can not be furnished by the Public Buildings Commission in Government buildings located in the District of Columbia." The amount is \$150,000.

Mr. HARRISON. There is an apparent increase in this item of \$50,000. This amount, however, includes the transfer of the item of \$41,509 for rent carried in the sundry civil act for the fiscal year 1920. The actual increase, therefore, is only \$8,491. The total appropriation for rent in the District of Columbia for the fiscal year 1919 was \$158,689. Congress reduced the amount to \$100,000 in the appropriation act for 1920 on the assumption that the Public Buildings Commission would be able to allot space in temporary structures to make up the deficit, but the commission found it possible to allot only a very small part of the space required.

Mr. ANDERSON. Are we to understand that with all of the emergency buildings put up during the war it is impossible to find quarters for the various activities of the Department of Agriculture, and that we are going to pay a rent equal to that paid prior to the war?

Mr. REESE. The Public Buildings Commission, created last March, made an allotment of space to this department on June 25, or just five days before the close of the fiscal year. In lieu of space that they allocated they required us to vacate seven rented buildings, which the department did promptly. Since that time the department has made several appeals to the Public Buildings Commission for space, and none has been allotted. I understand, informally, that the Public Buildings Commission is about to make another allotment of space, but I have no information as to what the Department of Agriculture may get.

Mr. ANDERSON. It looks rather ridiculous, on the face of it, with all of these buildings erected during the war and all of the parks all over town covered with temporary buildings, that we should pay \$150,000 a year for rent for the Agricultural Department.

Mr. HARRISON. I would like to call attention to what happened last year. The committee reduced the item for rent from \$158,689 to \$100,000, on the theory that we could secure a large allotment of space in the temporary structures. We filed applications with the Public Buildings Commission, and made every effort to get sufficient space to bring our expenditures for rent within the \$100,000. After the reduction had been made in the appropriation we were told by the Public Buildings Commission on the 25th of June to give up certain buildings occupied by the department, for which we were

paying rentals aggregating \$17,180. This was only five days before the expiration of the fiscal year, and we were approximately \$41,000 short. The chairman of the Public Buildings Commission suggested that we take the matter up with the Committee on Appropriations and secure through that committee any funds that might be needed in order to comply with the directions of the commission. I learned that the Committee on Appropriations still had under consideration the sundry civil bill, and we accordingly laid the situation before it, with the result that the additional amount required was included in the sundry civil bill. We were, however, placed in a very embarrassing situation, with only five days within which to secure relief.

We have continued our efforts to secure additional space in the temporary buildings in order that we might vacate some of the rented quarters which we now occupy. The Public Buildings Commission, however, has stated that it has given us every foot of space that is available for allotment to the Department of Agriculture. I want to make it absolutely clear to the committee that the department will not spend all this money for rent unless it is absolutely necessary, and we earnestly hope that the full amount will be appropriated, so that we will not be placed again in a situation similar to that which confronted us at the close of the last fiscal year.

The CHAIRMAN. Let me say this about the Saulsbury resolution: Congress provided a way to protect the Government against excessive rents. The matter is now up to the President. If the President desires to protect this Government against excessive rents, he has the authority. If he does not act, the country will suffer the consequences.

With regard to the space, there was adequate space to take care of the Department of Agriculture. There is no question about that. The committee, consequently, as you stated, cut the appropriation from \$158,689 to \$100,000. After an investigation, however, it was found advisable to allot the space to the War Department and other departments, and the space that it was thought could be allotted to the Department of Agriculture was allotted to other departments. To make up the deficit in rents for the Department of Agriculture \$41,000 was appropriated for the Department of Agriculture under the sundry civil act.

Mr. HARRISON. I want to make it clear that the department is in full sympathy with the view that the temporary structures erected during the war should be used to the fullest possible extent.

The CHAIRMAN. We will take the matter up and see how much space can be allotted.

Mr. RUBEY. Who is the chairman of the Public Buildings Committee?

The CHAIRMAN. Senator Smoot. This committee will see Senator Smoot and have the matter arranged, so as to ascertain whether or not it is necessary to appropriate this \$41,000 in order to allot the space to other departments.

Mr. HARRISON. I think it should be borne in mind, in considering the matter, that there are many activities which could not be moved into the temporary structures, because of the enormous cost that would be involved. I have in mind particularly the activities

which require the use of laboratory facilities. It would be a mistake, also, to move into nonfireproof buildings branches of the department which have a large accumulation of valuable and irreplaceable records.

Mr. RUBEN. It seems to me that the Agricultural Department should be given space in the temporary buildings near that department.

Mr. HARRISON. That is what we would like to have. Practically all the space allotted to us is in the Council of National Defense Building, at Eighteenth and B Streets NW., a considerable distance away from the department. It would have been very much better for us if we could have been given some of the space on the Mall, near the Smithsonian Institution. As you know, we now occupy something like 42 buildings.

Mr. RUBEN. And they are scattered all over the District of Columbia?

Mr. HARRISON. Yes.

The CHAIRMAN. The Public Buildings Commission has gone over the situation as applied to all of the departments, including the Department of Agriculture, to determine how space should be allotted in these temporary buildings. They will make another survey, so it is a matter to be ironed out by the commission.

Is that all you have, Mr. Reese?

Mr. REESE. Yes, sir; except that in any readjustment of the appropriation for rent in the District of Columbia consideration should be given to the fact that the department is paying rent for quarters used in the work under the cotton futures act out of the continuing appropriation originally made in the act of August 18, 1914 (which carried authority for paying rent in the District of Columbia), the unexpended balance of which was made available until expended by the agricultural appropriation act approved August 11, 1916. The sum of \$7,689.06 from this unexpended balance is now being used for the payment of rent for quarters occupied by the cotton futures work. The balance of the appropriation is sufficient to carry this charge until the end of the fiscal year 1920 but is not sufficient to carry it through the fiscal year 1921. Therefore the appropriation for rent in the District of Columbia should make provision for this amount over and above whatever amount may be finally fixed upon as the appropriation for rent in the District of Columbia if that appropriation is reduced on account of the assignment of free quarters to the department by the Public Buildings Commission.

The CHAIRMAN. Thank you, Mr. Reese.

COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Thursday, January 8, 1920.

AFTERNOON SESSION.

The committee met, pursuant to the taking of recess, Hon. Gilbert N. Haugen (chairman) presiding.

The CHAIRMAN. We will next take up the estimates for the States Relations Service. Mr. Harrison, who do you wish to testify first?

STATES RELATIONS SERVICE.

Mr. HARRISON. Mr. Chairman, the States Relations Service begins on page 212. Dr. True will present the estimates.

The CHAIRMAN. We will be pleased to hear Dr. True.

STATEMENT OF DR. A. C. TRUE, DIRECTOR OF THE STATES RELATIONS SERVICE, DEPARTMENT OF AGRICULTURE.

Dr. TRUE. The lines of work of the States Relations Service are the same as heretofore, but there has been a material reduction in the working forces of the service due to the cessation of special activities relating to the stimulation of the production and conservation of food under war conditions and the withdrawal of emergency funds.

Since the force reached the highest war level in 1918, the Washington force has decreased from 475 to 319, a decrease of 156, and the field forces, which are mainly the cooperative extension forces, have decreased from about 6,500 to 3,800, those figures being for the 1st of January. The Washington force is now just about equal to the force employed in July, 1917, before the emergency funds were available, though the regular funds of the service have increased \$436,140 since that time. Owing to conditions after the signing of the armistice, which made it inexpedient to push the emergency work as we had been doing up to that time, fully \$1,000,000 of the emergency appropriation was not expended and will remain in the Treasury.

The CHAIRMAN. Why was not the \$1,000,000 expended at that time?

Dr. TRUE. Because after the signing of the armistice—

The CHAIRMAN. The money was available, but was not used?

Dr. TRUE. It was available, but we did not push the work to the extent that we had been pushing it before.

Now, that is the general situation, and with that introduction we might, if you desire, take up the different items in the bill. The first item is the statutory roll, and in that there are no promotions or new places. There are a considerable number of transfers from the lump

sum to the statutory roll in accordance with the law, and in the case of three places we desire to change the title, as indicated in the estimate.

The CHAIRMAN. Let us take it up item by item, so that we will have it in the right order in the record. Is not the first item, No. 7, "5 clerks of class 4, increased by 1 from the lump sum"?

Dr. TRUE. Yes, sir.

The CHAIRMAN. The next is No. 8, "one executive clerk, at \$1,740, by transfer from lump fund for home economics."

Dr. TRUE. That is under item 7.

The CHAIRMAN. No. 11 is the next, "seventeen clerks of class 2, increase of 4 by transfer from lump fund for farmers' cooperative demonstrations in North and West."

Dr. TRUE. Yes.

The CHAIRMAN. The next is 14, "52 clerks, class 1, increase of 16 by transfer from lump fund, 4 from colleges and stations, and 12 from farmers' cooperative demonstrations in North and West." Is there any comment on that?

Mr. HUTCHINSON. May I ask you from what special appropriations these men have been paid?

Dr. TRUE. The lump funds are indicated here.

Mr. HUTCHINSON. Were they paid from emergency funds?

Dr. TRUE. At the time these transfers were made, they were on the regular funds.

Mr. HUTCHINSON. Why do you put them on the statutory roll now if they were on these lump funds? Take, for instance, item 14, an increase of 16. Where were they before you transferred them over? What were they paid from?

The CHAIRMAN. They were carried on the lump sum.

Dr. TRUE. They were carried on the lump sum.

Mr. HUTCHINSON. Under what appropriation?

Mr. McLAUGHLIN of Michigan. Twelve of them were carried on 37, on page 216.

Dr. TRUE. Four of them were on the item for the administration of the experiment stations and extension acts, and 12 were employed in connection with the Office of Extension Work in the North and West.

Mr. HUTCHINSON. What I want to get at is this: In making the transfer to the statutory roll, did you take them from the emergency fund or from item 37? What did you take off? There is an increase in item 37, I see, over last year.

Mr. McLAUGHLIN of Michigan. The note to 37 says that there is a decrease in this item of \$35,560 due to transfers to the statutory roll of this bureau.

Mr. HUTCHINSON. But you have \$551,000 in your estimate for 1920, and now it is \$715,000; and you have taken the men off and put them on the statutory roll.

Dr. TRUE. Yes.

Mr. HUTCHINSON. And still the estimate is increased. That is what I don't understand.

Dr. TRUE. The estimate for the North and West?

Mr. HUTCHINSON. I do not know whether it is the North and West or not; it is item 37.

Mr. HARRISON. This item has been decreased from \$751,280 to \$715,720 on account of transfers to the statutory roll.

Mr. HUTCHINSON. We gave you more than was estimated for last year.

Mr. HARRISON. Yes.

Dr. TRUE. \$200,000 was added to that item last year.

Mr. McLAUGHLIN. That was put on in the Senate.

Mr. HUTCHINSON. That is what I wanted to know.

Dr. TRUE. Now, we are asking in the total for just the same appropriation as at present. So it goes through, Mr. Chairman, with the different items. They are all small items.

The CHAIRMAN. Please read them so that we will have them in the record.

Dr. TRUE. Under item 15 there is one clerk or artist-draftsman, at \$1,200, transferred from the lump fund for farmers' cooperative demonstrations in North and West.

The CHAIRMAN. You skipped item 14, I believe, "52 clerks, class 1, increase of 16 by transfer from lump funds, 4 from colleges and stations, and 12 from farmers' cooperative demonstrations in North and West."

Dr. TRUE. Item 15 I have just read. No. 16 is "one clerk or machine operator at \$1,200, by transfer from lump fund for farmers' cooperative demonstrations in the South." Item 17, there are 24 clerks transferred from lump funds, 3 from colleges and stations, 10 from farmers' cooperative demonstrations in North and West, 8 from farmers' cooperative demonstrations in South, 2 from farmers' institutes and agricultural schools, and 1 from general administrative expenses.

Mr. McLAUGHLIN of Michigan. What is this appropriation that you speak of, for "colleges and stations"?

Dr. TRUE. That is the phrase that has got into use.

Mr. McLAUGHLIN of Michigan. Is that the permanent appropriation?

Dr. TRUE. That is the item for the administration of the extension and experiment station acts.

Mr. HARRISON. He refers to item 36, Mr. McLaughlin, on page 215.

The CHAIRMAN. The next one is 21, "one clerk, decrease of two by change to two messengers or laborers.

Dr. TRUE. That is a decrease of two by change of title to two messengers or laborers at \$840 each.

The CHAIRMAN. The next item is 22.

Dr. TRUE. That is a decrease of one clerk at \$720 by change to one messenger or laborer at \$720.

Under item 23 we have two messengers or laborers at \$840 each, in lieu of two clerks at \$840 each.

Under item 24 there is an increase of one messenger or laborer at \$720 in lieu of one clerk at \$720.

Under No. 27 there is an increase of one messenger boy at \$600 by transfer from the lump fund for farmers' institutes and agricultural schools.

Under No. 33 there is an increase of seven charwomen by transfer from lump sums. Two of these are from the general administrative expenses item, two from farmers' cooperative demonstrations in the North and West, one from farmers' cooperative demonstrations in

the South, one from farmers' institutes and agricultural schools, and one from the home economics. That concludes the list.

The CHAIRMAN. Are these transfers from the lump-sum rolls to the statutory roll made at the same salary?

Dr. TRUE. Yes, sir.

With reference to the statutory roll I wish to say that it is not in satisfactory condition, because we have on it at least 30 places which are not permanently filled on account of the salaries being too low to attract properly qualified persons.

The CHAIRMAN. You have 30 vacancies, you say?

Dr. TRUE. There are not actually at present 30 vacancies, because we can use some of these places for temporary people, but at the last account that I had there were 29 actual vacancies, and during the fiscal year just passed over \$30,000 of the amount appropriated for our statutory roll reverted to the Treasury for this same reason that it is impossible to get, at the low salaries for those places, people qualified to do the work. That is the reason why we had so many clerks on the lump-sum rolls that have to be transferred now to the statutory roll.

Mr. HUTCHINSON. Why do you do that? You say it is not satisfactory to transfer them to the statutory roll. Why do you not leave them on the lump sum and then pay what you please?

Dr. TRUE. We are not permitted to do that. We have to transfer at the end of the fiscal year all employees in the clerical and sub-clerical grades from the lump-sum to the statutory roll for the next year.

The CHAIRMAN. If the places are vacant, do you have to transfer them?

Dr. TRUE. We do not transfer the vacancies, but we are under instructions to report the statutory roll as it existed last year, with the transfers.

The CHAIRMAN. But you are transferring men from the lump-sum to the statutory roll.

Dr. TRUE. Yes, sir; we are obliged to do that.

The CHAIRMAN. For instance, No. 27, one messenger boy, at \$600, by transfer from lump fund for farmers' institutes and agricultural schools. Is that position filled?

Dr. TRUE. Yes, sir.

The CHAIRMAN. Let us first take up these low-salaried people.

Dr. TRUE. Take No. 19, where we have 31 clerks, at \$900 each, amounting to \$27,900. There is no transfer; but that is the kind of place that I am referring to. We can not fill those places at that salary. The entrance salary for clerks now is \$1,100 or \$1,200.

Mr. McLAUGHLIN of Michigan. Why not abolish some of these places, then?

Dr. TRUE. Those places are of no use to us except occasionally we can find some person who is willing temporarily to fill the place for some extra work that we have.

Mr. McLAUGHLIN of Michigan. In item 19 how many of those \$900-clerk places are not filled?

Dr. TRUE. My understanding is that there are now 22 places that are not filled.

The CHAIRMAN. Twenty-two of those \$900 places are not filled?

Dr. TRUE. Yes, sir.

Mr. HUTCHINSON. Is the department just as efficient with 22 vacancies as it would be if all of those places were filled?

Dr. TRUE. From our point of view, the statutory roll has on it too many of these low-priced places, and we have an undue number of places a little higher up, at \$1,100 or \$1,200. The result is that we appoint those clerks at the initial salary of \$1,100 or \$1,200 and get so many of them there and have so few places above that that there is very little chance for promotion.

Mr. HUTCHINSON. Suppose you had \$21,000 and suppose we make it 21 clerks instead of 31—knock off 10; would the department be just as efficient with 21 clerks as with 31?

Dr. TRUE. Yes; under present conditions, because we are not employing clerks at \$900. At the same time, I would like to have the committee consider this condition of affairs, that we have a relatively large number of places at \$1,100 and \$1,200 and very few places above that, with the result that just as soon as a clerk coming in becomes experienced in our work he gets uneasy and seeks some place outside, so that we are constantly losing good clerks. What we would like to see is the addition of a few places with salaries higher than \$1,200 and the elimination of these very low-salaried places which we can not satisfactorily fill. That matter was discussed last year, but for some reason the statutory roll was left just as it had been.

Mr. ANDERSON. If you have too many places at \$1,200, why do you transfer 16 clerks at \$1,200 to the statutory roll? I understand you to say that you had relatively a great many clerks at \$1,200.

Dr. TRUE. I did not say that we had too many people employed. Here is the actual situation: I do not remember the exact figures, but this will illustrate it clearly: We have, let us say, 60 places for clerks at \$1,200 and we employ 60 people on our roll at \$1,200—people that we need. In the \$1,400 grade we have only five places. Now, those clerks at \$1,200 are fixed there for a long period practically because there is little opportunity for promotion to the \$1,400 grade.

Mr. ANDERSON. That gets you right into the proposition of automatic promotions. Is it the policy of the department to automatically or more or less automatically promote people who are doing the same work from year to year without any change in the character of the employment?

Dr. TRUE. We take into question efficiency and length of service. If a person comes in at \$1,200 we do not expect him to remain at \$1,200 after he has been there with us a considerable time and has shown that he is a specially efficient clerk. We have, of course, in the regular order efficiency records which are considered by an efficiency committee, and the promotion is determined by that. Promotion is so slow under present conditions on our statutory roll that there is constant discouragement of our more experienced and efficient clerks, with the result that as soon as they get an opportunity they leave us, and there is a considerable turnover that might be avoided and the efficiency of the service increased if we had a limited number of positions at higher salaries in lieu of these 30 places or so at the very low salaries which are not of any use to us.

Mr. HUTCHINSON. If we should change that to 21 clerks, instead of 31, you could make nearly all of them \$1,400 clerks with the

\$27,000. What I want to know is whether these 21 clerks would keep the department as efficient as the 31 if you gave them \$1,400?

Dr. TRUE. I would not want to promote those—

Mr. HUTCHINSON. I know, you do not do that, you are cutting off 10.

Dr. TRUE. I am reducing the list by 10 because the positions are not filled and can not be filled under present conditions.

The CHAIRMAN. What became of the 22 clerks at \$900? Did they go into some other department or leave the service?

Dr. TRUE. They have left for one reason or another, or have been promoted into higher places.

The CHAIRMAN. They left the department?

Dr. TRUE. I presume some of those have left the department and others have been promoted to higher grades as there were opportunities.

The CHAIRMAN. To higher grades? Were they promoted on the statutory roll or lump sum?

Dr. TRUE. They had to be promoted on the statutory roll if promoted at all.

The CHAIRMAN. You promote them from the statutory roll to the lump sum?

Dr. TRUE. No, sir.

The CHAIRMAN. Is that not being done in the department?

Dr. TRUE. We can not do that under the law, unless there is an absolute change of duties.

The CHAIRMAN. I understand. Suppose there is a change of duties?

Dr. TRUE. There are very few cases of that kind.

The CHAIRMAN. Were any of these transferred from one roll to the other?

Dr. TRUE. I could not tell you, Mr. Chairman, except by looking into the records, but I do not think there are any such cases.

Mr. McLAUGHLIN of Michigan. Can you tell us how many vacancies there are now in these other places on this page?

Dr. TRUE. On page 213, items 21, 22, and 23 are vacant. Under item 24 there is one vacancy. All the places under item 26—3 messengers or laborers—are vacant. Items 29 and 30 are also vacant.

Mr. McLAUGHLIN of Michigan. Is there any need of appropriating the money for these places if they are vacant?

Dr. TRUE. From my point of view, there is no necessity for appropriating money for those places. They are of no use to us.

Mr. McLAUGHLIN of Michigan. On page 212, are there any vacancies above item 19?

Dr. TRUE. No, sir. I had not noted any. I do not think there are any.

The CHAIRMAN. Do you have any trouble in filling these places of messengers or laborers at \$840?

Dr. TRUE. Yes, sir; but we have much greater difficulty in getting clerks at \$840 a year now. We are therefore asking that the titles of two clerks at \$840, in item 21, and one clerk at \$720, in item 22, be changed to messenger or laborer.

The CHAIRMAN. Are the places filled now?

Mr. McLAUGHLIN of Michigan. Some are not.

The CHAIRMAN. Do you suggest two at \$840 so as to enable you to employ men temporarily at times?

Dr. TRUE. Because we could use two such places to greater advantage for messengers or laborers; we can not get clerks at this low salary.

Mr. McLAUGHLIN of Michigan. What is the next item?

Mr. HARRISON. The next is No. 34, on page 214, Mr. Chairman, the appropriations to the State colleges and stations under the Hatch and Adams Acts.

Dr. TRUE. Items 34 and 35 are merely appropriations to carry into effect the provisions of the Hatch and Adams Acts for the experiment stations, namely, \$30,000 to each of the 48 States, making a total of \$1,440,000. These stations in the 48 States employ about 1,700 persons, and as a result of their work they issue annually 700 or 800 publications, which are distributed to about 1,000,000 farmers and others on their mailing lists, and also in large numbers to their extension agents and otherwise.

The income of the stations in 1918, which is the last year for which we have the complete figures, was \$6,000,000, of which \$1,440,000 was received from the Federal Treasury and the remainder, about four and one-half millions, from the State appropriations.

Mr. McLAUGHLIN of Michigan. Is there any expense in the department involved in the distribution of this money to the States under these laws?

Dr. TRUE. We have the administration of both the extension and the experiment station acts, and the language that immediately follows in the appropriation act and in the estimates (item 36) relates to that. The estimate for the administration of the experiment station and extension acts taken together is \$71,500.

The CHAIRMAN. Are you on item 34, "to carry into effect the provisions of the act approved March 2, 1887," and so on, \$15,000 for each of the 48 States?

Dr. TRUE. That is the so-called Hatch Act for the experiment stations. The next item refers to the Adams Act and carries an equal amount.

Item 36 is for the administration of the extension act, the Smith-Lever Act, and the Hatch and Adams Acts. The amount estimated for that is \$71,500, to which must be added \$8,100 transferred to the statutory roll, making an actual increase of \$10,000.

The work under this item is grouped in two divisions: First, the work connected with the experiment stations, which is conducted through the Office of Experiment Stations, to which \$35,500 of this fund is allotted. This money provides for the examination of the projects submitted by the station directors, the inspection of the work and expenditure of the stations, the preparation of the report required by law on the work and expenditures of the stations, and the preparation of the Experiment Station Record. This last item is the largest single item of expense. The Experiment Station Record is a periodical which contains abstracts of the reports of over 1,000 stations and similar institutions and similar scientific literature throughout the world, together with statements giving a large amount of advice and information to the stations regarding their work. In addition to this we do through the Office of Experiment Stations a large amount

of more general work in advising and assisting the stations regarding their plans of work, their equipment, and their personnel.

The business of the Office of Experiment Stations grows gradually with the enlargement of the station work in the States, and its expenses under present conditions for travel, supplies, etc., are necessarily greater than in normal times, and so the amount which is now allotted to the Office of Experiment Stations in the estimates involves an increase of \$1,500 for this work next year.

The permanent force employed in the Office of Experiment Stations under this item includes the chief of the office, who is also the editor in chief of the Experiment Station Record and by profession an agricultural chemist; a chief of insular stations, who also has charge of the work relating to botanical investigations, being, in fact, a professional botanist; nine scientific assistants, representing different branches of agricultural science, who are principally engaged on the Experiment Station Record; a part-time agricultural physicist and two other scientific assistants engaged mainly in the bibliographical work necessarily connected with the preparation of the Experiment Station Record. This is the same kind of work and practically the same force which we have had for a long time.

The rest of the money under this item is used for the administration of the extension act, the Smith-Lever Act. This sum amounts to \$36,200. It also includes some of the work which we do in administering the supplementary fund appropriated for the same purpose in the agricultural appropriation act this year, because that is spent for the same purposes as the Smith-Lever funds and comes under our administration in practically the same way.

The Federal and State Smith-Lever fund for the fiscal year 1921 will be \$6,680,000. There is an increase of \$1,000,000.

Mr. McLAUGHLIN of Michigan. That is, Federal and State?

Dr. TRUE. Yes; and the supplementary funds.

Mr. McLAUGHLIN of Michigan. The Lever law will carry \$3,580,000?

Dr. TRUE. Yes.

Mr. McLAUGHLIN of Michigan. And the States have to duplicate that, except \$480,000?

Dr. TRUE. Yes, sir; so that there will be in all \$6,680,000 and the supplementary fund estimated for, both Federal and State, amounting to \$3,000,000, making a total of Federal and State funds under the terms of the Smith-Lever Act of \$9,680,000. The plans of work and the resulting expenditures must be examined and approved by the States Relations Service for all this fund, and the annual report on this work and expenditure must be prepared as required by act of Congress.

Mr. ANDERSON. May I ask, Dr. True, if there is any limitation upon the amount of the appropriations of the Smith-Lever fund that may be spent for administrative purposes?

Dr. TRUE. No, sir; the act does not itemize, except with reference to the printing of publications. Only 5 per cent can be used for printing and distribution of publications.

Under this item for the administration of this work an increase of \$8,000 is estimated to provide for the increase of business connected with the administration of the increased extension funds.

The CHAIRMAN. In how many counties are you operating now?

Dr. TRUE. We have county agricultural agents in 2,000 counties.

The CHAIRMAN. Only 2,000?

Dr. TRUE. 2,000 is the last record.

If we may take up item 37, "For farmers' cooperative demonstration work outside the cotton belt"; that work is done in the 33 Northern and Western States. The estimate is \$715,720, to which must be added \$35,560 transferred to the statutory roll, making a total for this work of \$751,280, which is the same amount as the appropriation for the current fiscal year. Of this amount, \$574,825 is allotted to the States to be used in conjunction with other funds for cooperative extension work along these lines, the county agricultural agents, the home demonstration agents, the boys' and girls' club workers, the farm management demonstrations, and the supervisory officers for these lines of work; \$119,155 is allotted for the field service of the Office of Extension Work, North and West, and other service which it performs in cooperation with the State extension forces; and the remainder, \$57,300, is used in the supervisory work of this office.

The force of this office, with headquarters at Washington, at present consists of 24 scientific employees, 52 clerks, and 13 subclerical employees. This force aids the extension forces in the 33 Northern and Western States in organizing and conducting this work, arranging with the different bureaus of the department for their cooperation in extension work in those States; prepares and distributes publications and mimeograph material to the State extension forces and through them to the farming people; receives reports of the progress of the work in the several States; and uses these, with other information obtained by personal visits to the States, in carrying to the several States useful information about the work being done in different parts of the country, and, in general, acts as a clearing house of assistance, influence, and information on all matters relating to extension work in the Northern and Western States. Most of the scientific staff spend a large share of their time in the field studying the problems of the extension work and joining with the State forces in the conduct of their work.

Mr. ANDERSON. Doctor, there seems to be in my State an impression that a whole lot of this money is dissipated in some way so that it never reaches the county agents and never does any good to the people intended to be benefited; at least, there was a good deal of complaint in my State on that score, although how well founded I do not know. The impression seemed to be that the Agricultural Department down here took a whack at it and used a large portion of the funds in supervisory work and in specialists chasing around the country chasing up the county agents, and then the State administrations took another whack at it for their supervisory forces, and so forth, with the result that a good deal of it got away and was not used in the actual employment of county agents which the people out in my country thought it was intended for.

Dr. TRUE. That opens up a large subject which we will be glad to discuss in as much detail as the committee may desire.

Mr. ANDERSON. Have you any table or figures or any data showing the amount or proportion of administrative expense that is charged up against the various appropriations for extension work, both by the State and by the Federal Governments?

Dr. TRUE. Yes, sir; I propose to submit a little later on a number of tables showing how this money is used.

Mr. ANDERSON. I do not want to anticipate it.

Mr. HUTCHINSON. I want to ask you a question right there. You said a moment ago that you had 2,000 county agents.

Mr. McLAUGHLIN of Michigan. Two thousand counties provided with agents.

Mr. HUTCHINSON. In most of the States, if you pay for a county agent, does not the State pay an equal amount? In other words, if the county does not have a county agent appointed by the State or the county, do you put one in there and pay all the expense?

Dr. TRUE. No, sir. I do not know of any such case now.

Mr. HUTCHINSON. In other words, for every dollar that the Government gives the county puts up the same amount, does it?

Dr. TRUE. The county puts up more than an equal amount.

Mr. McLAUGHLIN of Michigan. The State?

Mr. HUTCHINSON. The State puts up more?

Dr. TRUE. Yes.

Mr. HUTCHINSON. In other words, you do not pay the county agent in any county in the United States where the State does not give an equal amount?

Dr. TRUE. At least an equal amount.

Mr. McLAUGHLIN of Michigan. Is that entirely true, Doctor? Under item 37 and under 38 contribution by the States is not absolutely required, is it? Under the Lever law it does have to be duplicated by the States.

Dr. TRUE. There is no requirement in law for any particular amount to be contributed under these two items that you are referring to now.

Mr. McLAUGHLIN of Michigan. Is it not a fact that some of the county agents are employed and paid entirely out of these two funds without contribution by the States in which they are employed?

Dr. TRUE. No, sir; that is not the case.

Mr. McLAUGHLIN of Michigan. I thought it was.

The CHAIRMAN. No cooperation is required under item 37 except in the discretion of the Secretary?

Dr. TRUE. No, sir.

Mr. McLAUGHLIN of Michigan. But he says it has been required in all cases.

Dr. TRUE. Yes, sir.

Mr. HARRISON. Under the emergency appropriation we paid the total salary of some of the county agents, but I do not understand that we are paying the entire salary of any agent under items 37 and 38.

The CHAIRMAN. Is it not a fact that the Federal Government contributes \$4,100,000 for which the States are required to match dollar for dollar?

Dr. TRUE. Yes, sir; under the Smith-Lever Act.

The CHAIRMAN. They are not required to match the \$715,720 nor the \$480,000?

Dr. TRUE. That is correct.

The CHAIRMAN. There is \$715,720 outside of the cotton belt?

Dr. TRUE. Yes, sir.

The CHAIRMAN. There is \$634,800 in the cotton boll-weevil district?

Dr. TRUE. Yes, sir.

The CHAIRMAN. That is \$1,350,520?

Dr. TRUE. Yes, sir.

The CHAIRMAN. Then under the Smith-Lever Act next year you get \$3,580,000?

Dr. TRUE. Yes, sir; plus the \$1,500,000 supplementary fund to be used under terms of the Smith-Lever Act.

The CHAIRMAN. The total is \$6,430,520 Federal funds?

Dr. TRUE. Yes, sir.

The CHAIRMAN. You pay the States \$480,000; to which they are entitled without matching?

Dr. TRUE. Yes, sir.

The CHAIRMAN. That leaves \$5,950,520.

Dr. TRUE. Yes, sir.

The CHAIRMAN. Then they pay the States \$715,720 and \$634,800, which it is within the discretion of the Secretary whether that be matched or not. We will say that they are not required to match that, which would leave \$4,600,000 to be matched by the States, dollar for dollar.

Dr. TRUE. Yes, sir.

The CHAIRMAN. Add to the \$4,600,000 put up by the States the \$6,430,520 appropriated in this bill for the work and you have 11,030,520; you say that you are now in 2,000 counties, so that would give an average of \$5,515 for each county.

Dr. TRUE. Yes, sir; if the money was spent in that way for a single agent in each county, if that is what you are thinking of.

The CHAIRMAN. The average of the 2,000 counties is \$5,515?

Dr. TRUE. Yes; under that enumeration for the 2,000 counties.

The CHAIRMAN. I understood you to say that you had 2,000 counties?

Dr. TRUE. Yes, sir.

The CHAIRMAN. That would be the average amount available?

Dr. TRUE. If you apportion it in that way it includes whatever is paid for the salary and expenses of the county agricultural agent, and also the woman agent, or boys' and girls' club leader. It also includes money that is spent for supervisory officers and for the extension specialists who go out to aid people living in the counties.

The CHAIRMAN. How much is used for the organizers and how much for the agents?

Dr. TRUE. The average expense for county agents—his salary and expenses at present—is \$3,600.

The CHAIRMAN. What is the average salary of the agent? You pay his expenses besides, do you not?

Dr. TRUE. You would have to take off \$1,000 for traveling expenses.

The CHAIRMAN. Then the average salary is about \$2,600?

Dr. TRUE. \$2,500 or \$2,600. For the woman agent the cost, including her expenses, will average \$2,600.

The CHAIRMAN. What would her salary average?

Dr. TRUE. The salary would be perhaps \$1,800 on the average.

The CHAIRMAN. That would make \$6,200 for the two.

Dr. TRUE. That, of course, is more money than you estimated, but, as a matter of fact, we have more money than that. Through the contributions of the counties and the States, in addition to what they are required to put up, we have a considerable amount of money;

so that the total amount of money which we have for extension work in the United States this year is \$14,250,000.

The CHAIRMAN. The States put up more than the Federal Government does?

Dr. TRUE. Yes, the States and the counties particularly. Since the emergency fund was withdrawn, we have to rely on the counties more; and those counties thus far that have really wanted to have agents have been very generous with their contributions and have supported the work beyond what we expected they would.

Mr. HUTCHINSON. Do you get a report of the expenditures of each county directly from the States?

Dr. TRUE. Yes, sir.

Mr. HUTCHINSON. Do you have that in printed form?

Dr. TRUE. I have tables here which show that, which I will insert in the record.

(The statement referred to follows:)

GENERAL STATISTICS OF COOPERATIVE AGRICULTURAL EXTENSION WORK.

The funds available in the fiscal year 1919-20 for cooperative agricultural extension work in the 48 States as shown in the projects submitted by the State agricultural colleges and approved by the Secretary of Agriculture, as compared with funds available for the same purpose in the five preceding fiscal years, are shown in the following tables:

Sources of funds.	1914-15	1915-16	1916-17	1917-18	1918-19	1919-20
Federal Government:						
Farmers' Cooperative Demonstration Work.....	\$905,782	\$914,290	\$943,088	\$1,037,501	\$1,006,114	¹ \$1,052,825
Emergency.....				2,949,073	5,594,065	
Other bureaus.....	105,168	157,621	121,609	182,708	418,539	295,765
Federal Smith-Lever.....	474,935	1,080,005	1,580,000	2,080,000	2,580,000	3,079,999
Federal supplementary Smith-Lever.....						² 1,418,627
Total.....	1,485,885	2,151,916	2,644,697	6,249,282	9,598,721	5,847,246
Within the State:						
State and college—						
Offset to Federal Smith-Lever.....		497,145	968,000	1,324,367	1,780,216	2,383,833
Offset to Federal supplementary Smith-Lever.....						386,221
Funds not offset.....	1,058,266	906,087	739,629	729,208	907,422	955,508
Total.....	1,058,266	1,403,232	1,707,629	2,053,575	2,747,638	3,725,567
County—						
Offset to Federal Smith-Lever.....		68,004	83,614	202,846	235,795	185,677
Offset to Federal supplementary Smith-Lever.....						935,916
Funds not offset.....	815,732	939,668	1,246,288	1,544,366	2,247,219	2,994,031
Total.....	815,732	1,007,672	1,329,902	1,747,212	2,483,014	4,115,624
Miscellaneous—						
Offset to Federal Smith-Lever.....		34,850	48,384	72,784	83,997	30,490
Offset to Federal supplementary Smith-Lever.....						96,499
Funds not offset.....	247,352	273,951	372,546	443,307	767,946	428,538
Total.....	247,352	308,801	420,930	516,091	851,943	555,517
Total.....	2,121,350	2,719,705	3,458,461	4,316,878	6,082,495	8,406,696
Grand total.....	3,607,235	4,871,621	6,103,158	10,566,171	15,671,308	14,253,944

¹ This does not include \$343,493 spent at Washington for field service, supervision, and franked envelopes in cooperation with the States and counties.

² The total Federal supplementary appropriation for 1920 is \$1 500,000 but the amount for which the States offered offset is \$1,418,627.

The general lines of work to which the extension funds are devoted are shown in the following table:

Allotment of cooperative extension funds to lines of work, 1915-1920.

Year.	Total.	Adminis- tration.	Publica- tions.	County agents.	Home economics.	Club work.	Specialists.
1914-15	\$3,607,208	\$266,493	\$72,115	\$1,922,751	\$319,779	\$187,042	\$738,573
1915-16	4,871,620	422,078	100,735	2,488,756	638,061	263,598	1,066,892
1916-17	6,103,126	445,720	137,187	3,102,883	756,050	372,097	1,289,189
1917-18	10,566,173	599,107	138,323	5,505,196	2,033,776	745,819	1,543,852
1918-19	15,671,310	876,591	221,076	7,872,907	3,573,013	1,008,847	2,118,876
1919-20	14,253,944	914,350	207,057	7,571,725	2,571,725	859,624	2,271,592

¹ Includes \$68,455 not allotted.

There are 525 extension specialists in the Northern and Western States and 250 in the Southern States, making a total of 775. There are at least 16 different subjects in which there are specialists, as follows: Agronomy, horticulture, forestry, plant pathology, animal husbandry, poultry, dairying, veterinary science, biology, rural engineering, farm management, marketing, rural economics, food and nutrition, clothing, household equipment and management. In large subjects, such as horticulture, there may be several specialists. On the average, there is at present one specialist in each subject for each State.

Allotment of Federal and State extension funds by lines of work, 1919-20.

Project.	Farmers' cooperative demonstration work.	Smith-Lever, 1919-20.					Miscellaneous funds not used as offset to Federal funds.	Total.
		Regular.		Supplementary.		Total.		
		Federal.	State.	Federal.	State.			
County agent.....	\$590,462	\$1,079,785	\$1,041,566	\$901,232	\$1,064,943	\$4,087,526	\$2,751,608	\$7,429,596
Home demonstration.....	279,918	521,024	444,413	341,714	288,393	1,595,544	606,263	2,571,725
Club work.....	130,844	186,774	153,147	121,682	34,955	496,558	232,222	859,624
Specialists.....	36,000	749,047	625,537	40,272	28,336	1,443,192	792,400	2,271,592
Publications.....		89,939	73,023	2,000	2,000	166,962	40,065	207,057
Administration.....	15,601	453,431	282,314	11,727		727,472	171,277	914,350
Total.....	1,052,825	3,080,000	2,600,000	1,418,627	1,418,627	8,517,254	4,683,865	14,253,944
Washington supervision.....	99,340							
Field service.....	209,155							
Envelopes.....	35,000							
Total farmers' cooperative demonstration work.....	1,396,320							

¹ This includes \$751,280 for work in 33 Northern and Western States and \$645,040 for work in 15 Southern States.

The number of cooperative extension employees (including supervisory officers) engaged in county agent work, home demonstration work, and boys' and girls' club work at different times between April, 1917, and December, 1919, is shown in the following table:

Number of cooperative extension employees in the States, 1917-1919.

Date.	County agent work.	Home demonstration work.	Boys' and girls' work.	Total.
April, 1917.....	1,461	545	143	2,149
July, 1917.....	1,659	593	248	2,500
January, 1918.....	2,351	1,408	445	4,204
July, 1918.....	3,001	2,034	1,181	6,216
January, 1919.....	2,774	1,679	445	4,898
July, 1919.....	2,808	1,774	686	5,268
September, 1919.....	2,603	1,210	447	4,260
October, 1919.....	2,501	1,115	439	4,055
November, 1919.....	2,496	1,070	409	3,966
December, 1919.....	2,413	1,052	430	3,901
January, 1920.....	2,382	1,032	384	3,796

The number of counties having agricultural agents and home demonstration agents on July 1, 1914-1919, inclusive, is shown in the following table:

Number of counties with extension agents, July 1, 1914-1919.

Date.	County agricultural agents.	Home demonstration agents.
1914.....	928	279
1915.....	1,136	350
1916.....	1,225	430
1917.....	1,434	537
1918.....	2,435	1,715
1919.....	2,257	1,049
1919 (December).....	1,999	813

The number of agricultural counties without county agricultural agents is 937, and without home demonstration agents is 2,123.

The CHAIRMAN. What other expenditure besides the two people in each county is contemplated?

Dr. TRUE. We have the expense of their supervision and assistants, and then we have the extension specialists, who go out from the college. I have the figures for that, Mr. Chairman.

Mr. ANDERSON. Whom do these extension specialists see?

Dr. TRUE. They go to the counties to instruct the county agents, and they also join with the county agents in the instruction of farm people. They prepare the literature which the county agents have in large measure to distribute. They also work in the counties which at present have no county agents.

Mr. ANDERSON. Do they do anything in the way of extension or institute work, or anything of that sort?

Dr. TRUE. Yes, sir. They hold farmers' meetings and so-called extension schools which last from three to five days, perhaps.

This is the situation: Here is a county agent in a particular county. Some of these counties are not so large, while others are very large—in fact, equal in area to some of our States. One man as agricultural agent has all sorts of problems coming up; and, while he is perhaps a well-educated man along agricultural lines, he may not be able to solve all of those problems. He can then send for the extension specialist at the college to come and help out.

Mr. McLAUGHLIN of Michigan. Besides the money in the lump sum that you let the colleges have, do you contribute something to

the college for the pay of those specialists that are sent out from the college?

Dr. TRUE. We do not from the funds directly appropriated to our extension offices, except in the case of the farm management demonstration work in the Northern States, which, as you will remember, has been carried a number of years in the item for the northern extension office.

Mr. McLAUGHLIN of Michigan. You spoke of problems coming up that the county agents are not able to solve, and that it is necessary to have some one better informed to go to help them. I have noticed that when representatives of other bureaus have been before this committee, in talking about their work, they have told us that they have specialists for cattle, specialists in cattle diseases, specialists in hog diseases, specialists in poultry, specialists in different kinds of farm crops, etc. These gentlemen came before us and told us that it is necessary to have specialists employed to do these different kinds of work, because the county agents in no cases are capable of doing it. That is a reflection on the county-agent system that is quite serious, and we have heard it here most emphatically for at least two or three years. None of these county agents can do it. There must be some specialist to do every little thing outside the most ordinary farm work.

Dr. TRUE. The theory, as I understand it, on which the extension work of the Department of Agriculture is conducted is that the department, as the result of its investigations, has special knowledge which it can carry out to the States and which can supplement what the States have along such lines. In some cases that may be something that is very new. In other cases it may not be, but the particular thing is a new thing to the region in which the extension work is done, though it is not a new thing to the department. For instance, as I understand it, cotton growing is now being developed in New Mexico and Arizona, particularly in Arizona. The department has been carrying on special experiments on long-staple cotton. That is a new industry in Arizona, and the college there has nobody who is specially expert in that matter. The county agents in the counties would not know about that. It is a new matter. In such a case as that the department can send out men who have a broader and deeper knowledge of the subject than either the State or the county agent. In a number of the Southern States in the past the department has done a relatively large amount of work along the line of dairy husbandry and dairying, because that work was not developed in those States and the colleges were not equipped with thoroughly informed experts in many cases. That thing is constantly shifting, but, as I said, the theory on which the department is conducting its extension work is that it has new and special knowledge, which not all the States and the counties have, to supplement the work which the States and counties are able to furnish themselves.

Mr. McLAUGHLIN of Michigan. Over and over again in our hearings, when the matter of sending out experts was talked about, some member of the committee has asked, "Why can not the county agent do that? It seems like a simple matter. Can not the county agent do it?" The gentlemen from the different bureaus have replied:

"No; the county agents are not competent to do it." The gentlemen who are here, the members of the committee, will bear me out that they have said that time without number.

Dr. TRUE. It is difficult for me to deal with that matter without more specific knowledge as to just what that means. The various experts in the department are undoubtedly enthusiastic about their own subjects, and they may in some cases overstate the thing, but in a good many cases it is true that they have some new or special knowledge which you would not expect a man to have who had graduated from an agricultural college some years ago and had gone out to help the people in the county in a general way.

Mr. McLAUGHLIN of Michigan. They had to hire men to go out to help form bull-buying clubs. They had to hire men to go out to organize cow-testing associations, and so on. I can not recall the different things, but they seemed to me like ordinary work and activities that a county agent might do.

Dr. TRUE. It may be so in certain sections.

The CHAIRMAN. How much money is now being used for these supervisors and how many are there of them?

Dr. TRUE. Here is the whole statement with reference to our funds.

The CHAIRMAN. Will you put it in concise form in the record?

Dr. TRUE. I have quite a number of details which I would like to insert in the record and which will put this in a connected way.

The CHAIRMAN. On the floor we can not conveniently go through all the tables you have had prepared, to answer these questions.

Dr. TRUE. I can tell you briefly in this way: We have now, as I said, nearly \$14,250,000. Out of that \$914,000, in round numbers, is spent for administration at the colleges. That is about 7 per cent. Two per cent, or \$207,000, is spent for printing and distribution of publications. That, you will see, is 3 per cent less than might be spent under the law. For extension specialists, \$2,271,500, in round numbers, is spent.

Mr. ANDERSON. Is that spent by you or through the colleges?

Dr. TRUE. Through the colleges. That fund does include some of the department people. That includes the amounts that are budgeted in the projects.

Mr. ANDERSON. Let me understand that now. That \$2,000,000 includes some men who are employed by the department?

Dr. TRUE. Yes; in various bureaus.

Mr. ANDERSON. Are they paid out of their appropriations or out of this appropriation?

Dr. TRUE. They are paid out of the appropriations of the different bureaus.

Mr. ANDERSON. But it does not come in here?

Dr. TRUE. It comes in here because I have given the total amount of money which is available for extension work.

Mr. ANDERSON. All right.

The CHAIRMAN. This \$914,000?

Dr. TRUE. That is for administration.

The CHAIRMAN. Is that for county agents?

Dr. TRUE. No, sir; that includes the administrative expenses at the college.

The CHAIRMAN. What does the \$914,000 include?

Dr. TRUE. That includes the general expenses of the extension offices, the accounting, supplies and equipment, etc.

The CHAIRMAN. It seems to me that is a large amount.

Dr. TRUE. Each college has set up under this extension system offices at the college. The funds are all accounted for there. They prepare a large amount of material, in the form of publications, charts, and mimeograph material, which they send out to counties for use. They have miscellaneous expenses, equipment, some travel, and salaries of the general administrative officers. For that they spend about 7 per cent of the total extension funds. That has not impressed me as an unduly large amount, considering what it covers.

The CHAIRMAN. It is practically \$20,000 for each State.

Dr. TRUE. Yes. Then we have the \$207,000 for printing and distribution of publications. That is 2 per cent. Then we have the \$2,271,500, in round numbers, for specialists, which is about 16 per cent. That leaves for the work of the county agents, home demonstration agents, and the boys' and girls' club work, \$10,861,000, or 75 per cent. For the county agricultural agents we have \$7,429,500. That is 51 per cent. For the home-economics agents the amount is \$2,571,700, in round numbers, or 18 per cent; for the boys' and girls' club work, \$859,600, or 6 per cent.

The CHAIRMAN. That does not leave very much for the agents.

Dr. TRUE. In general, we may say that 75 per cent of the money is spent for the work in the counties.

The CHAIRMAN. How many specialists have you and what do they do?

Dr. TRUE. Our present records show that in the United States as a whole there are about 775 specialists.

Mr. HUTCHINSON. Where are they located, Doctor?

Dr. TRUE. They have headquarters at the colleges.

The CHAIRMAN. Do they stay at the colleges or go through the country?

Dr. TRUE. They spend a large part of the time in the field, but their headquarters are at the colleges.

The CHAIRMAN. What do they do at the college?

Dr. TRUE. At the college they are engaged in the preparation of publications and in correspondence relating to the extension work, in the various lines, as in dairying, field crops, drainage, irrigation, and so on. There are about 15 or 16 different subjects for which each college may have extension specialists. However, all of them do not have as many as that. Some of these specialists are employed on part time; that is, they may give a half or a third of their time to this work, while others may give their whole time to it.

The CHAIRMAN. That is about 15 specialists for every State?

Dr. TRUE. About 15 or 16 specialists for each State. That is about one on the average for each of the main divisions of the college, that is, agronomy, horticulture, forestry, animal husbandry, dairying, and so on. Of course, there are not forestry experts for every State, but in some States where horticulture is a very important subject there may be more than one specialist in that subject. There may be a specialist on vegetables and another on fruits, for example. The subject is divided up. And there are plant pathology and animal pathology, etc.

The CHAIRMAN. The experts in various lines are sent out by you?

Dr. TRUE. They are sent from the colleges. I am speaking now of people employed at the colleges who go out.

The CHAIRMAN. Are we to understand that we are employing professors for the colleges?

Dr. TRUE. We are employing these people as extension specialists at the college.

The CHAIRMAN. In connection with this work?

Dr. TRUE. In connection with this work. Each college has an extension division.

The CHAIRMAN. Are they working for the college, the State, or the Government?

Dr. TRUE. They are working for the extension work in the State as far as they are employed for that purpose. As I said, some of these men are employed part time. A man may be employed for a half or a third of his time as an extension worker going out through the State.

The CHAIRMAN. You mean part of the time by the State?

Dr. TRUE. Yes; by the State at the college.

The CHAIRMAN. Paid out of the State funds?

Dr. TRUE. Out of the extension funds that they have at the college.

The CHAIRMAN. Outside of these Federal funds?

Dr. TRUE. We are talking about both Federal and State funds. They are working for us and also for the colleges—the States. It is a joint enterprise.

The CHAIRMAN. Then the colleges pay them for part time and we pay them for part?

Dr. TRUE. Yes.

The CHAIRMAN. They are paid part time out of the Federal funds and part time out of the State funds?

Dr. TRUE. Here is a man employed at the college, an expert in dairying, and he spends half of his time in teaching classes.

The CHAIRMAN. Who pays for that?

Dr. TRUE. The college pays that. We look after that very carefully.

The CHAIRMAN. Then he devotes half of his time to extension work?

Dr. TRUE. Yes.

The CHAIRMAN. And that is paid out of these joint funds?

Dr. TRUE. Yes, sir.

The CHAIRMAN. You say there are 775 specialists?

Dr. TRUE. Yes, sir.

The CHAIRMAN. What do they do during the half-time they are employed by you?

Dr. TRUE. Part of the half time they spend at the college preparing extension publications and also answering correspondence, inquiries that come to them from the country agents or from farmers around the State who want information. Then they go out to the counties by an understanding with the county agents. Sometimes the agent has them come out there to give him some definite instructions; he goes out with the specialist to see what is the trouble in certain cases and gets instructions which will help him the next time to solve that problem. Or it may be a group of farmers who want in-

struction on that subject. And meetings are held and they give them instruction.

The CHAIRMAN. They attend institutes also?

Dr. TRUE. Yes; what we often call institutes. I am speaking now of meetings in general terms.

The CHAIRMAN. Short courses and meetings?

Dr. TRUE. Yes, sir.

Mr. HUTCHINSON. Then, Doctor, you have 775 experts and they can handle almost any question that come up at any time, can they?

Dr. TRUE. Yes, sir; as far as we have the knowledge at all. Our knowledge is limited.

Mr. HUTCHINSON. Plant industry or some of the other departments send specialists out into different parts of the country; you have experts that understand practically anything that comes up that the county agent wants to know?

Dr. TRUE. Yes, sir. If a bureau in the department has a request for extension work, say, on some subject as in dairying, then that department, through the States Relations Service, enters into an arrangement with the State, at the college, to send out one or more of its men to help in the extension work of the State. That man, while he is doing extension work, may be located at the college. When a job is done there, he comes back to the department and may go to another State.

Mr. HUTCHINSON. Suppose we have a county agent that does not know how to make a crop estimate; have you men to tell him how?

Dr. TRUE. Our agents do not deal with the crop estimating. The department has its force.

Mr. HUTCHINSON. Suppose we have a county agent so ignorant that he does not know how to estimate a crop of wheat. Do you have some one to tell him?

Dr. TRUE. That work is not a part of the regular duties of a county agent.

Mr. HUTCHINSON. I know; but we have so many different departments that we want to consolidate some of them and save money.

Dr. TRUE. But the county agent is one of the busiest men in the United States now, and we are trying to protect him from having more duties put on him.

Mr. HUTCHINSON. His time is taken up?

Dr. TRUE. It is more than taken up.

Mr. HUTCHINSON. He generally has an automobile and three or four men, too?

Dr. TRUE. Stop and think of a county agent in one county where there may be 3,000 farmers.

Mr. HUTCHINSON. These county agents generally have an automobile and two or three to go with them all the time?

Dr. TRUE. They must have an automobile.

Mr. HUTCHINSON. And assistants, including, generally, a lady demonstrator?

Dr. TRUE. There is a lady demonstrator, but she deals with the household matters, chiefly. Those people are the busiest people, and the work is very strenuous. In fact, as far as the women are concerned, we have difficulty in getting and keeping good women agents, as that work uses them up too fast—the hard traveling under

all sorts of conditions and boarding around in different places. It is very strenuous work for a woman.

The CHAIRMAN. These specialists are employed by the colleges, and you also employ some of them?

Dr. TRUE. Certainly.

The CHAIRMAN. You get your specialists from the colleges?

Dr. TRUE. Certainly.

The CHAIRMAN. Most of them are professors in the colleges?

Dr. TRUE. Some of them are; but quite a considerable number of them do not do any teaching. They are employed all the time as extension specialists.

The CHAIRMAN. Some of them?

Dr. TRUE. A good many of them.

The CHAIRMAN. Have you any estimate as to how many specialists there are from the other bureaus of the department cooperating with you. For instance, does the Bureau of Plant Industry send out specialists?

Dr. TRUE. Certainly; under instructions from the Secretary, men are not to go into the States or extension work unless they have an arrangement through the States Relations Service with the college in the State, so that there shall not be a duplication of the work and confusion in the enterprise.

The CHAIRMAN. Do the specialists referred to by Mr. McLaughlin cooperate with you?

Dr. TRUE. Certainly.

The CHAIRMAN. If the Dairy Division should send out some one from that division, would he cooperate with your people?

Dr. TRUE. Yes, sir.

The CHAIRMAN. Thank you, Doctor. The committee will now recess.

(Thereupon, at 5.45 o'clock p. m., the committee adjourned until to-morrow, Friday, January 9, at 10 o'clock a. m.)

COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Friday, January 9, 1920.

The committee met at 10 o'clock a. m., Hon. Gilbert N. Haugen (chairman) presiding.

STATES RELATIONS SERVICE—Continued.

The CHAIRMAN. You may proceed, Dr. True.

STATEMENT OF DR. A. C. TRUE, DIRECTOR OF THE STATES RELATION SERVICE, DEPARTMENT OF AGRICULTURE—Continued.

Dr. TRUE. Yesterday, when we concluded, we were still on item 37, for the farmer's cooperative demonstrative work in the Northern States. I have here a statement of the field force employed in these States. There are 31 State leaders of county agricultural agents, 78 assistant State leaders, and 1,108 county agricultural agents. There are 29 State leaders of home demonstration agents,

203 assistant State home demonstration agents, and 225 county home demonstration agents. There are 22 State leaders of boys' and girls' club work, 73 assistant State leaders of boys' and girls' club work, and 230 county club leaders. That makes the total number of cooperative employees 1,845. To these must be added 33 extension directors and 526 specialists, who are not paid anything from the direct appropriation to the department, making a total force in the 33 Northern and Western States of 2,404 persons.

The Federal, State, and county funds used in cooperative extension work in the 33 northern and western States amount this year to about \$8,900,000.

Mr. McLAUGHLIN of Michigan. To me, Dr. True, that is somewhat confusing. In the first place, that includes money contributed by the States from all sources in the States. We are interested only in the amount of money that is appropriated by Congress for that work. Those figures are interesting, and that may be just what some of the other members of the committee want, but I am particularly interested in the amounts Congress is appropriating; and when they are included in other great big amounts, as I say, it is confusing to me.

Dr. TRUE. Later on, Mr. McLaughlin, I will present some tables which, I think, will clear up that matter. As a matter of fact, this work is all of a cooperative nature and so joined together that, unless we take into account all the persons and funds, we do not get a complete idea of it.

Mr. McLAUGHLIN of Michigan. It is interesting to know the figures—how much the States have contributed and in what way and how they used it. I think we ought to have pretty definitely just the amounts for each kind of work appropriated for by Congress; but you say you will furnish that later.

Dr. TRUE. I have prepared a brief statement regarding some of the results of this work in the Northern States, if you desire to go into that, or I can put that in the record.

The CHAIRMAN. How long a statement is it?

Dr. TRUE. Just a few paragraphs.

The CHAIRMAN. You may give it to us now.

Dr. TRUE. In 1918, which is the last year for which we have complete figures, the county agricultural agents in the Northern and Western States conducted 77,668 demonstrations incident to crop and live-stock production. These demonstrations were visited by 677,653 persons, and the increased profits to farmers on whose farms they were conducted, due to better practices, amounted to \$22,206,307, or more than five times the total cost of the work in the Northern States.

The total value of the cooperative business conducted by farmers' exchanges and other cooperative associations organized with the aid of the county agents in this and preceding years amounted to \$41,847,783. The saving to farmers effected through these organizations amounted to \$4,500,000.

The home-demonstration agents brought about the home canning of 24,000,000 quarts of fruits and vegetables. The 250,000 boys and girls who made complete reports on their work produced \$6,000,000 worth of products, with a profit of \$3,500,000; while the total super-

visory cost of all the crop work in which, in all, 527,723 boys and girls were enrolled, was \$547,851.

The CHAIRMAN. Kindly state the character of the work of the demonstrations and the exchanges.

Dr. TRUE. Those were organizations which the farmers formed for the purpose of marketing their crops or live stock or purchasing fertilizers or other material.

The CHAIRMAN. You have reference to a cooperative association?

Dr. TRUE. Yes; cooperative associations of various kinds. I have used that term "farmers' exchanges" because it is often used in a general way.

The CHAIRMAN. Do they associate in marketing?

Dr. TRUE. Yes, sir.

The CHAIRMAN. And in buying also?

Dr. TRUE. Yes, sir.

The CHAIRMAN. What is the character of the demonstrations to which you refer?

Dr. TRUE. They covered a great variety of subjects. There were demonstrations with the various crops.

The CHAIRMAN. Do you go on the farms and make the demonstrations?

Dr. TRUE. Oh, yes. The demonstrations are carried on on the farm by the farmer himself, under the supervision of the county agent. The county agent and the farmer get together and arrange to make a demonstration of some new crop or some new method of cultivation or fertilization, and the farmer carries on that demonstration, and then meetings are held.

The CHAIRMAN. Does that operation include the whole farm or just a small plot?

Dr. TRUE. Just a small portion.

The CHAIRMAN. Is it a demonstration of what can be done with the use of certain fertilizers, intense cultivation, and rotation of crops?

Dr. TRUE. Yes; a variety of things.

The CHAIRMAN. You spoke about a certain profit, running into the millions. How was that arrived at?

Dr. TRUE. We receive the reports of the agents, in which statements are made about what is done in the demonstration, what the results were, what prices were received for the crops or live stock, and the profit.

The CHAIRMAN. Are books kept of the cost?

Dr. TRUE. Yes; books are kept.

The CHAIRMAN. And the increased production, compared with the increased cost, and also increased use under normal conditions?

Dr. TRUE. Yes, sir.

The CHAIRMAN. And the profits and advantages run up into the millions, as stated by you?

Dr. TRUE. Yes, sir.

Mr. HUTCHINSON. Do you get at the dollars and cents figures by keeping a record? Do the county agents keep a record?

Dr. TRUE. The farmer usually keeps the record. Mr. Smith, who is in charge of that work, will explain it to you if you desire.

The CHAIRMAN. We will be glad to hear Mr. Smith.

STATEMENT OF MR. CLARENCE B. SMITH, CHIEF OF THE OFFICE OF EXTENSION WORK IN THE NORTHERN AND WESTERN STATES, STATES RELATIONS SERVICE, DEPARTMENT OF AGRICULTURE.

Mr. SMITH. These 77,000 demonstrations are just the measured demonstrations—demonstrations on which actual records were kept by the farmers themselves and over which the county agents have supervision. Of course there was a great deal of additional work done and no record is kept of that additional work. These are simply the measured demonstrations in 40 lines of work.

Mr. HUTCHINSON. That is just a small part of the agriculture carried on, then—just what goes to your own demonstrations?

Mr. SMITH. Yes; just what is included in our demonstrations. We did not dare make any estimate on things on which we did not have the figures.

Mr. HUTCHINSON. Are these exact figures on just what you demonstrate, or are they multiplied by the agriculture of the country?

Mr. SMITH. They are the exact figures on these particular areas, sometimes of small extent and sometimes of large extent.

Mr. HUTCHINSON. I understood the amount is \$22,000,000.

Mr. SMITH. More than that on the demonstration areas alone.

Mr. HUTCHINSON. That is just what you get accurate accounts of, in a small way? Do you demonstrate around the country?

Mr. SMITH. It is just on the areas on those particular lines in which demonstrations are being carried on.

The CHAIRMAN. Will you kindly go into the details of certain of your demonstrations and tell us exactly what is being done?

Mr. SMITH. Take potatoes. It may be a matter of standardization of varieties of potatoes or a variety that is best adapted to the community. The college has worked out a variety that they think is better adapted to the community than some other variety. That variety is tried out in the community, we will say, on an acre plot, in comparison with the variety the farmer usually grows. Both are given the same kind of cultivation, and the differences in yield may show the differences in value of the variety that is recommended, for instance, over the varieties that are commonly grown. That is a minor type of demonstration.

Another demonstration in connection with potatoes might be the amount a group of farmers received from a carload of mixed varieties of potatoes versus a carload of all one variety of potatoes. They are just simply illustrations.

The CHAIRMAN. I take it also as to cultivation?

Mr. SMITH. Cultivation; yes, sir.

The CHAIRMAN. You try out different methods of cultivation?

Mr. SMITH. Yes; we try out different methods of cultivation if that seems to be an important matter in the community.

Mr. McLAUGHLIN of Michigan. That particular work was done in one of the counties in my district, and it was done very well indeed, under Mr. Blandford, in Newaygo County. You know him, do you?

Mr. SMITH. Yes, sir.

Mr. McLAUGHLIN of Michigan. I think it was with very good results.

Mr. SMITH. The cooperative marketing potato work in Michigan has been one of the outstanding features of the work in that State. I can not remember the exact figures now, but the cooperative marketing work for last year ran into the thousands of carloads marketed through their farmers' organizations.

Mr. McLAUGHLIN of Michigan. I know the county agents have encouraged the farmer to get better varieties of seed. I remember that one or two of the county agents recommended a certain kind of rye and induced the farmers to put in certain acreages, and they noted the acreage, the increased yield, and the increased price of the product on the market, and the results were very satisfactory.

Mr. SMITH. Rosen rye?

Mr. McLAUGHLIN. Rosen rye; and it is that character of work and that particular line you are speaking of that is being done?

Mr. SMITH. Yes.

Mr. McLAUGHLIN of Michigan. I think you can approximately get at the profit, the difference between the results of the better seed and the better cultivation and the old rye with the old system. That is the way you get at these figures that you speak of in making a comparison?

Mr. SMITH. Yes, sir. In the case of the county agent's work we rely on the county agent's report itself. In the case of the boys' and girls' club work, each boy and girl who sends in a report gets a certification by two witnesses as to the entire operation, the yields on their plots, and presumably the cost of production.

The CHAIRMAN. This demonstration, then, is largely a boys' and girls' club demonstration?

Mr. SMITH. No, sir; it involves a whole community.

The CHAIRMAN. Who carries on the demonstrations?

Mr. SMITH. The farmer himself carries it on, sometimes at the suggestion of the county agent. That is one class of people. Then the same kind of work may be carried on in our boys' and girls' club work.

The CHAIRMAN. Now kindly explain something about the marketing.

Mr. SMITH. Yes; I can explain, perhaps, the local live-stock exchange, which is very common in Minnesota and a number of the States. The farmers are accustomed to selling their stock to local buyers and the local buyers pay them what is necessary and make a profit on it. The farmers, when they get together at a group meeting, may decide that it would be better for them to club together and sell cooperatively, so that they might sell in carload lots. The county agent may advise them or tell them of the success that has been attained in that line of work in other communities which he may know about and encourage them to organize themselves into a live-stock shipping association.

On a certain day the cattle or live stock is brought in; it is graded by a committee of the farmers themselves and shipped in carload lots. Each one is so marked that they know who the owner is. They do their own business with their own officers. The county agent, in an advisory capacity, is a kind of stimulus to get them to do that thing.

Mr. YOUNG. I am curious to know just how you handle the shipment on the market. Suppose you get there, say, with 30 head of

steers in the car and these steers belong to 15 different farmers, are they sold as individual animals at the market point, or are they sold in carload lots?

Mr. SMITH. I can not tell you exactly how that is done, but I know it is so handled that each one of the shippers gets the proper amount for his stock.

The CHAIRMAN. If they are of the same quality, they are sold in a bunch, but weighed separately. Thank you, Mr. Smith. We will hear Mr. Knapp.

STATEMENT OF MR. BRADFORD KNAPP, CHIEF OF THE OFFICE OF EXTENSION WORK IN THE SOUTHERN STATES, STATES RELATIONS SERVICE, DEPARTMENT OF AGRICULTURE.

Mr. KNAPP. They are weighed separately at the chute as the farmers bring them in. Records are kept separately, and when they arrive at the market they are sold in a carload as an individual would sell his. They go onto the market and are sold just as though they belonged to one individual, and the returns are prorated according to the grading. Before they go into the car they are all graded and are sold on the same grading.

Mr. YOUNG. So that the farmers have no disputes when the returns come back as to whether some other fellow is getting the money for his particular steer?

Mr. KNAPP. No; there is no dispute of that kind. The interesting thing about that, where they are just small farmers and have only a few cattle in the car, is that the losses in transit are prorated; so that, if one old farmer had only one steer and that was the only one lost in transit, he does not lose it, but the loss is prorated. I find that is one of the most encouraging things to the farmers themselves—the insurance on their shipments.

Mr. McLAUGHLIN of Michigan. Heretofore, just as Mr. Smith has said, the farmers were at the mercy of the string butchers, as we call them—the men who run around the country and make a business of picking up cattle and paying the farmers just what they please. In these associations, composed of a large number of farmers, their stock is graded; they do not put good fat steers in with old cows on their last legs and thin cattle that are no good which, when they get to the market, bring a small price. Altogether it is very profitable. I have heard men connected with the associations with which I am familiar and of which I have some knowledge speak about it, and it is very satisfactory.

Mr. KNAPP. The idea is to substitute a good business system in place of a bad system. In Mississippi, where the hog industry has increased since the last census by 76 per cent, the farmers did not know very much about marketing hogs. They never had marketed beyond just their local market, and it became necessary to train them in the marketing of hogs. Local buyers went in there from other States and bought up the hogs as low as 8 cents a pound, or \$8 a hundred, at a time when the St. Louis market was controlling at \$16. The minute they put in the cooperative system of shipping, the farmers began to get just as good a price as the northern market warranted; that is, they began shipping into St. Louis and got close to the top price.

Mr. ANDERSON. Do all these northern hogs come from the southern market?

Mr. KNAPP. No. I might say in that connection that there was a difference of 5 cents a pound in the county where there was no organization and no county agent and the place where there was a county agent. No, Mr. Anderson; the southern hogs are not all shipped north. A great many of them are not shipped north, especially those that are being produced in what we call the peanut region. A very serious problem with us now in this connection is that of soft pork. These hogs are mainly marketed at Jacksonville, Fla., Macon and Moultrie, Ga., Andalusia, Ala., and one or two other points. The Mississippi hogs in the main are going north, but the Tennessee hogs in the main are marketed either at St. Louis, Louisville, or Nashville. Nashville is beginning to be a very good market. The hogs of Clay County are marketed mainly in Cincinnati, St. Louis, and Chicago, and the hogs from the peanut region, which includes a large acreage in southern Alabama, southern Georgia, and northern Florida, are marketed mainly at those local points. It is not a good thing to ship north; they do not stand well in the northern market. I have been through a long investigation of that in cooperation with the Federal Trade Commission. That whole situation was thoroughly investigated, and I have been in personal contact with it.

The CHAIRMAN. They sell at a lower price?

Mr. KNAPP. Yes. One of the difficulties we are having right now is to get the packers to recognize the farmer to the extent of paying him for good, hard hogs when he produces good, hard hogs, and not to brand the whole section with disapproval by buying them all on the basis of soft hogs.

The CHAIRMAN. Is it generally conceded that there is a difference in quality?

Mr. KNAPP. There is.

The CHAIRMAN. A real difference?

Mr. KNAPP. Oh, yes. I do not think there can be any question about that—that there is a real difference in quality.

The CHAIRMAN. To what extent?

Mr. KNAPP. That is a difficult question to answer. There seems to be a very great difference of opinion. The packers say that there is a marked difference, due to the shrinkage in the process from killing to curing the meat, while the investigations of the experiment stations and of the Department of Agriculture thus far fail to verify that statement.

The CHAIRMAN. The hogs produce more lard and less meat?

Mr. KNAPP. The meat itself is softer; the tissue itself is softer. The lard has a lower melting point and requires stearine to be added to it, which is permitted under the rules, in order to make hard lard out of it. Our problem is to balance up the ration of the hog and not to feed him all peanuts, and we are at work with the farmers on that now.

Mr. YOUNG. I know something about it in a small way down in my State—not so much in connection with peanut-fed hogs as with mast-fed hogs, and in the earlier days we were confronted with the same problem.

Mr. KNAPP. The mast-fed hog presents the same problem.

Mr. YOUNG. We learned to let them run on the mast for a few weeks and then to put them on corn and harden up the meat.

Mr. KNAPP. Our experience is that that works out a great many times. However, the packers tell us that you can not make a hard hog after you have fattened him once on mast or peanuts. That problem is one that the department and experiment stations have to work out; we have to know about that; and I must confess I do not think we do know now.

Mr. YOUNG. Speaking as a layman, I have had a little practical experience on that, and my own judgment is the packers are holding us up on that proposition.

Mr. KNAPP. Mr. Young, I am inclined to agree with you. That is my experience, too.

Mr. YOUNG. Because the man who has raised hogs in that way and has eaten the meat himself and gone through the actual experience in everyday life knows it is not so.

Mr. KNAPP. Take the Smithfield hams, produced in West Virginia. Those hogs are fed on peanuts; the Brooks County (Ga.) hogs come the same way, and they are the most delicate and fine-flavored article you want to eat anywhere.

The CHAIRMAN. And they sell at a higher price?

Mr. KNAPP. Yes.

Mr. YOUNG. I raise my meat in that way; I feed my hogs on such feed as cottonseed meal or peanuts (I use just whatever I have), but when I finish them I use corn. In my own case, in curing and eating my own meat, I know when the packers say you have an article that is not just as good they are telling something that is not true.

Mr. TINCHER. And the packer hardly ever sells any soft pork?

Mr. YOUNG. He does not sell any soft pork, but when he buys his hogs he pays the price for soft pork.

The CHAIRMAN. Do the stockmen and merchants take kindly to this proposition?

Mr. KNAPP. Of course, the local buyer, who is in there to buy as cheaply as he can and beat down the price to the farmer and sell at a high price on the market, is not in favor of it; but the local banker and merchants are very highly in favor of it, because it puts more money in the hands of the farmer, and they have a better opportunity to fix up their farms. The result of that would be that the competition between the farmers' organization and the stock buyer would hold the price up so that there would be no difference between the two, except that the one has to pay the expenses of his manager and the other is a manager himself.

The CHAIRMAN. Thank you, Mr. Knapp.

FURTHER STATEMENT OF MR. CLARENCE B. SMITH, CHIEF OF THE OFFICE OF EXTENSION WORK IN THE NORTHERN AND WESTERN STATES, STATES RELATIONS SERVICE.

Mr. SMITH. Sometimes that local stock buyer becomes the manager for the farmers in handling their work. The number of purchasing and marketing associations organized last year through the influence of the agents were about 1,650, and the groups that they dealt with did a business of around \$26,000,000.

The CHAIRMAN. Is it generally a success?

Mr. SMITH. They are generally successful; yes, sir.

The CHAIRMAN. Do many of them incorporate?

Mr. SMITH. There is not much capital usually involved.

Mr. McLAUGHLIN of Michigan. It is sort of a voluntary organization?

Mr. SMITH. Yes, sir.

Mr. McLAUGHLIN of Michigan. It is not a corporation ordinarily, is it?

Mr. SMITH. Not ordinarily. There are all kinds, but ordinarily it is not.

The CHAIRMAN. In the northwestern States, in Iowa and Minnesota, they are nearly all incorporated.

Mr. ANDERSON. They are incorporated under the State laws authorizing that particular kind of a corporation, some of them having stock and others not; that is my recollection.

I have an impression that four or five years ago in Minnesota we had so-called State farms—that is, we had farms which were operated entirely under the direction of the county agent or the State college.

Mr. SMITH. Yes.

Mr. ANDERSON. Is that work being continued?

Mr. SMITH. Yes, sir; and it is being discontinued, too. They had 12 or 15 farms that they called farm-management demonstration farms. The land was owned by the farmers, and the college assumed entire direction of the farm. They have kept records on those farms now for 10 or 12 years and the results that they secure each year on each farm are presented usually at a mass meeting at the end of the year, where all the farmers of the community are invited to attend. They have found, while that is an accurate method, that it is rather expensive and does not reach enough farmers, and so they are gradually giving up that work now that the county-agent work is coming in and operates more broadly so as to reach many more farmers.

Mr. McLAUGHLIN of Michigan. You say it was expensive. Why should it be expensive?

Mr. SMITH. It required some representative from the college to go out there once about every two or three weeks.

Mr. McLAUGHLIN of Michigan. It was expensive to the State; not to the farmer?

Mr. SMITH. Expensive to the State; yes. The farms in practically every case worked out very satisfactorily and made good demonstration farms, but it required on the part of the college too much overhead supervision.

The CHAIRMAN. Did not the counties pay the expenses?

Mr. SMITH. No; it is a separate proposition in Minnesota; these farms were started by the colleges and the counties had nothing to do with it at all. The overhead expense was borne entirely by the college and the farmers in the county simply followed the directions of the college.

Mr. ANDERSON. This work was begun, as I recall, before we had any county organizations to speak of in Minnesota.

Mr. SMITH. I have a report right here on that very thing. There are 14 of those privately owned farms now in that State, and I have

the details of that if you are interested and can let them go in the record.

Mr. TINCHER. I see on your chart there that you have certain counties marked "organized." Does that mean that they have a county agent or had a county agent on November 1, 1919?

Dr. TRUE. Yes, sir.

Mr. SMITH. All these that are marked with this purple color.

Mr. TINCHER. The others, those not marked that way, did not have a county agent on November 1?

Dr. TRUE. Those shown in yellow have no county agent.

Mr. TINCHER. I am conducting correspondence with a lot of imposters, then, because I know in my congressional district they have half a dozen agents; they have county agents, and they did all summer. In my own county—I was there last summer when the agent was appointed. Take Barber County, Kans.; I had a fight with the county commissioners to appoint an agent there, and I know he is there and that he has been there all summer; but that chart shows there is no organization.

Mr. McLAUGHLIN of Michigan. Perhaps this chart was prepared before that time.

Mr. TINCHER. No; it says November 1, 1919. I know he was there and that he did good work in furnishing harvest hands to get the work done.

Mr. SMITH. That chart may not be accurate, but it is pretty nearly accurate.

Dr. TRUE. There may be some technical reason why that would not get on our record.

Mr. TINCHER. There are three or four counties that I know of which have county agents, but which are not shown on your chart.

Mr. SMITH. There are 40 county agents in Kansas. I have not the names of those agents here.

Mr. TINCHER. I do not think there were 15 counties in Kansas on November 1 that did not have county agents.

Mr. SMITH. There are 105 counties in Kansas, and on December 1 Kansas had 40 county agents. Before that they had a number of district agents—men who operated in five or six counties, but the counties contributed practically no money.

Mr. TINCHER. Have you a list of the counties there?

Mr. SMITH. Not here; but I can send it up to you.

Mr. TINCHER. I wish you would do that. The complaint is that on the first allotment they allotted all their money, so the Agricultural Department claims, and have no money to take on any new county agents. In my district there are 32 counties, only about five of which got any of the allotment; and the others are complaining because they did not get any. I just corresponded with your department recently, so I know something is wrong with this chart.

Mr. McLAUGHLIN of Nebraska. Along that line. I notice you have four counties marked "county agents" in Nebraska; we have six to my knowledge.

Mr. TINCHER. They were usually worth their price this summer, because they aided in doing the work and got the harvest hands and actually delivered the goods.

STATEMENT OF DR. A. C. TRUE, DIRECTOR OF THE STATES RELATIONS SERVICE, DEPARTMENT OF AGRICULTURE—Continued.

The CHAIRMAN. This circular reports that at the present time there are 2,300 out of 2,936 counties in the United States with county agricultural agents. I understood you to say that you had only 2,000.

Dr. TRUE. Yes; the number has declined since that report.

Mr. HUTCHINSON. On your chart up there, I notice there is a decrease in most everything. Why is that—because of the condition of the funds? Are the States not giving as much?

Dr. TRUE. Last year we had a large emergency fund, which was withdrawn on the 1st of July.

Mr. HUTCHINSON. You mean in 1918?

Dr. TRUE. Yes, sir.

Mr. HUTCHINSON. That was on account of the war?

Dr. TRUE. Yes, sir.

Mr. McLAUGHLIN of Michigan. When the amount of money is limited, is it advisable to have a county agent in the county, a man, and a woman besides; and another employed on the boys' clubs and girls' clubs? Could not the county agent, if necessary, do that kind of work? There is not much difficulty about it and no particular skill is required, is there?

Dr. TRUE. That is just a question of the amount of money which the county has to put into the work. We go on the principle that the first thing to do is to get a man agent there. If the county is willing to go beyond that and to contribute toward the salary of a woman as well, then we desire to put her in; but you will note in the Northern States a large number of the counties have not decided to have a woman agent so far.

Mr. McLAUGHLIN of Michigan. Even where a county wishes a woman agent, it would take the money that can be used to employ a regular county agent, and the amount of your money is limited.

Dr. TRUE. But if the county desires to have a woman agent, she can do very useful work.

Mr. McLAUGHLIN of Michigan. Then you allow that county some money, although it is taken away from the fund that might be used in employing a county agent elsewhere?

Dr. TRUE. It does not necessarily work out that way.

Mr. McLAUGHLIN of Michigan. It must necessarily, because the amount of money is limited, and the amount next year may be still less than you have had this year.

Dr. TRUE. It is not true yet that all the counties are sufficiently interested in this work to even desire one agent.

Mr. McKINLEY. Do I understand this: For instance, we will take my county, Champaign County; we have a man agent for which the county is willing to contribute part and the Government then pays its share of the money for the man agent. That is right, is it not?

Dr. TRUE. Yes; either the Government or the college which receives the Federal fund.

Mr. McKINLEY. Suppose they decide they want a woman agent, also, for which they are going to pay \$100 a month: How much do you contribute?

Dr. TRUE. That would depend upon the circumstances.

Mr. McKINLEY. How much would you contribute?

Dr. TRUE. Out of the direct appropriation to the department we might not contribute more than \$1.

Mr. McKINLEY. How much would you contribute?

Dr. TRUE. Up to \$600, if we had the funds.

Mr. HUTCHINSON. If I understood it yesterday, the apportionment to each county was approximately \$5,000, and they could hire two agents if they wanted to.

Dr. TRUE. We do not apportion the amount to the county.

Mr. HUTCHINSON. You have over 2,000 county agents and you have \$10,000,000, have you not?

Dr. TRUE. The proposition is this, that in order to have an agent in the county, the county must show a sufficient interest in the work to contribute a liberal amount toward the support of the agent.

Mr. HUTCHINSON. But you can not give over your apportionment of the whole fund, can you—that is, \$5,000 to each county? That is what it figures up. The way we figured it yesterday it was \$5,000 to each county. Now, you get your county agents for \$3,500 and you have \$1,500 to hire a woman, or can you go as high as \$5,000?

Dr. TRUE. The thing would not work out practically that way. What is done with this money, as far as the Federal Government is concerned, is that it is allotted to the States and goes to the college. The college takes that money and combines with it the State appropriations or money which it has from other sources. Then the State deals with the county through the county government or the farm bureau in the county and enters into a cooperative arrangement. That cooperative arrangement varies, according to circumstances in the county, so that we have in detail a considerable variety of different arrangements.

Mr. HUTCHINSON. Then if any State or any counties in a State do not ask for it, the State does not get any portion of it; is that it?

Dr. TRUE. The State gets its allotment, but the county does not get the money.

Mr. HUTCHINSON. The State gets the full allotment—their share of the full appropriation?

Dr. TRUE. Yes, sir. I might say further, in reply to Mr. McLaughlin's question regarding the women agents, that thus far about 17 per cent of the Smith-Lever funds are spent for the home-economics work. That is at present a matter that is being criticized by the women quite extensively; there is an impression, which is quite widespread in this country among the women, that they are not getting as much of this money as they ought to have for home-economics work. We have gone on the principle that this work was not to be developed except as there was a demand for it in the counties and it was possible to put in competent women to do this work.

Mr. McLAUGHLIN of Michigan. When this farm-demonstration work was begun, when there was talk about a law and an appropriation, which developed into the Lever law, it was suggested that there would be money enough for one man in each county in the country. Many to whom that proposition was submitted were astounded with the idea that the Federal Government should undertake to have one man in every county in the country. But now we find that there is

the demand on the part of the department not only for a county agent in a county but for one or more women in a county, and a separate agent for the organization of boys' clubs, a separate agent for the organization of girls' clubs, and so on. It seems to me we are getting away from the idea that was in the minds of those who framed the Lever law and did not so strongly favor the proposition to begin with.

Dr. TRUE. The Lever Act provides for work in both agriculture and home economics. As far as the funds are concerned, we must bear in mind all the time that the value of the dollar has materially decreased, so that the money that is given under the Smith-Lever fund will not go nearly as far as it would have when the act was passed five years ago. Beside that, in a broader way, it is not simply the department and the colleges that want these things, but the people themselves desire to have aid along these lines. The result is that there has been built up quite a comprehensive system of extension work through the agricultural colleges and the department, and the States and the counties have been liberal in their contributions, greatly exceeding at present the contributions made by the Federal Government. We are simply working under the conditions which we have at present in developing this system.

The funds available at present are not sufficient to put this system into full operation in every county in the United States. It is not likely for a long time that there will be a woman agent or a club agent in every county. In those matters we follow the desire of the people themselves, and that varies greatly. For instance, in South Carolina, the women's work has been so popular and effective that every county in South Carolina, if I remember correctly, now has a woman agent.

Mr. McKINLEY. But the State and county authorities pay half of that, do they not?

**FURTHER STATEMENT OF MR. BRADFORD KNAPP, CHIEF OF THE
OFFICE OF EXTENSION WORK IN THE SOUTHERN STATES,
STATES RELATIONS SERVICE, DEPARTMENT OF AGRICULTURE.**

Mr. KNAPP. They pay much more than that. Let me just say, in answer to Mr. McLaughlin, that as far as we are concerned in the South we are not advocating the placing of a separate agent for boys' and girls' club work in the county. We think that is a bad practice, just as you seem to indicate you think it is. I think it is making too much organization. Ordinarily, to be perfectly frank, I think it is enough if we have a county agricultural agent and a county home-demonstration agent. I want to explain, if you will permit me, why I think that the county home-demonstration agent is an important factor. I may say when I took charge of this work in the South, on the death of my father, that there were only three women agents in the United States. At the present time there are 600 counties in the South where there are home-demonstration agents, and I can point to many counties where they would part with their county agricultural agent before they would part with their home-demonstration agent. If you conceive of the home work of a woman as merely dietetics (and I am not criticizing that part; that is all important), and if you throw out of it the consideration of the practical side of the farm

women's work, you do not get the full conception of what these women are doing. Our farm-management people tell us that the farm is divided into enterprises, and that the proper correlation of the enterprises and choice of the correct enterprises make for successful farming. You know, from your own observation, that the farmer has his corn, his small grains, his hay, his pasturage, and his cattle and hogs, and these major enterprises on the farm.

Yet there are, let me say, what we might call the minor enterprises of the farm. There is the poultry, which almost universally falls to the lot of the women; there is the home dairy, the direction of which almost universally falls to the lot of the woman; there is the vineyard, if there be any, the home vineyard; there is the canning and preserving and putting away of the food products on the farm for future use; there is the home garden and its products, and her intelligence, as a rule, directs that. Then, besides that, of course, there is the whole problem of the management of the home.

In the South, it was a problem of adding to the income of the farm. For instance, of all women engaged in agriculture the last census showed that there were 84.9 per cent in the cotton territory, where they were getting 50 cents a day in the field. We knew, and we have demonstrated time and again, that they could add more to the family income by productive enterprises around the home that naturally fall to the woman's lot, if they were taught to do it, than they could by working as mere field hands out in the fields with a hoe. And one of the great accomplishments of this work in the South is the fact that we have changed hundreds and thousands of field hands into real home makers who are producing something, often quite a material production, for the sake of the home income. We put it on the practical proposition that our first step was to add something there that gave them an income in dollars and cents, and hence the garden, better poultry, better marketing of that poultry; and to save the products of the farm they ordinarily would not sell, they are canning the surplus products on the farm; and that has added very materially to the wealth of that section.

I have approached this matter from the other angle. Farm women and farmers themselves may not be much taken to it or attracted by it. We have approached it from the practical angle of improving the ability of the person to earn a livelihood. Then you get entrance into the home and the confidence of the people and you can take up questions of dietetics and health, the raising of babies, and those other things that have come into our work as incidental things, which flow from the confidence which the people generally get in the home demonstration agent as she travels over the county. Our women and the county agents cooperate very closely in working out those big problems of the country home.

We do not have in the South, except in a very few instances, any separate county agents to deal with the boys' and girls' club work. The county agent handles the boys' clubs and gives the boys instructions in agriculture if they have clubs (and they do organize them—we have them to a large extent), and the home demonstration agent gives instruction in the lines of work that naturally fall to the women and the girls. So we do not have those extra assistants. I am not criticizing those who do have them, but I simply say we

have never had them in our territory. I believe thoroughly in the efficiency of the present arrangement for our section, and I might say the colleges are all in perfect accord with me on this subject, with possibly the exception of one who thinks we ought to have some county club leaders; but almost universally in the South we have seen that we did not have enough money and felt that we ought to conserve that money and unite on those very practical lines of work that go definitely to the farm income, from the farmer's standpoint, and the home income, from the standpoint of the wife, and that we could take care of the boys' and girls' clubs along with that organization. So far we have reason to believe we have succeeded fairly well with that kind of an organization. I just wanted to say that.

That is my own personal opinion from my 10 years of experience here, and I simply give it to you for what it is worth. I do not criticize the others who have a different opinion. In the South, if the county wanted to put up a large amount of money and take the same amount from the United States and have extra employees in the county, they can do so. I know of counties where only six or seven hundred dollars, or under a thousand dollars, has been put up by the college and department combined, where the county puts up \$4,000 or \$5,000 (some rich, influential counties sometimes do that) and have extra employees, without any general club work, to give assistance to the county agent and possibly assistance to the home-demonstration agent; but that is the rare exception.

The CHAIRMAN. It is my understanding that that is the practice all over.

Dr. TRUE. We must bear in mind, in considering the extension work, that ours is a big country. Mr. Knapp has explained the system that has grown up in the Southern States, but when you come to deal with the Northern and Western States you have in some respects different problems in the organization of the work. I think, if you desire, Mr. Smith, who has charge of the northern work, can explain more fully some of these things to which Mr. Knapp has referred, from his point of view, as dealing with the Northern and Western States.

FURTHER STATEMENT OF MR. CLARENCE B. SMITH, CHIEF OF THE OFFICE OF EXTENSION WORK IN THE NORTHERN AND WESTERN STATES, STATES RELATIONS SERVICE, DEPARTMENT OF AGRICULTURE.

Mr. SMITH. I would like to give you the theory we are operating on with reference to the employment of these agents. First of all, the colleges and the department and the farmers usually are in accord with putting up their money for the county agents. That is the first agent put on the work there and that county agent helps the farmers put on their demonstrations and also extends his work usually to the boys' and girls' clubs and helps the women all he can. Time goes on and he becomes very busy and it is sometimes desirable to give him assistants in that work. The women themselves say, "Here is the law which contemplates work with women, and nothing special is being done with this; can we have the same help for the women that you are giving to our men?" So the women themselves and the farmers decide they would like to cooperate in the employ-

ment of a home-demonstration agent. The next one put on, then, is usually a woman agent. The people themselves determine that and they pay a larger part of the money. She works particularly with the women and also extends her work to the girls.

If it happens that county is a rather thickly settled county and there should be three to five thousand rural girls and boys in that county, as there may be, the fathers and mothers may decide that they would like to have some one give special attention to those boys and girls. The matter of keeping them on the farm is important. So they decide they would like to cooperate in the employment of some one to give his whole time to that work.

This chart will give you some notion of what they think of that work as well as of the county agent's work and home-demonstration work. This chart shows a comparison between the work of 1918 and the work of 1919.

Office of extension work north and west—Cooperative funds and staff on Dec. 1, 1918-19, v. same date, 1919-20.

	County and district agents.		Rural and urban home demonstration agents.		County-club agents.	
	1918-19	1919-20	1918-19	1919-20	1918-19	1919-20
Staff:						
Eastern States.....	C. D. 186 9	C. D. 187 3	U. R. 162 44	U. R. 73 8	20	22
Central States.....	703 49	693 5	250 46	95 2	24	77
Western States.....	247 9	242 3	84 11	66 3	24	57
Total.....	1,136 67	1,122 11	496 101	234 13	68	156
Percentage of loss or gain.....		-1 83		-52 88		+114
Total staff (number).....			665	303	623	394
Percentage of decrease.....				-55		-37
Funds:						
Eastern States.....	1,046,504	1,024,234	374,756	254,296	155,768	152,916
Central States.....	2,964,758	2,652,518	602,403	275,556	373,291	247,616
Western States.....	1,202,784	1,075,902	258,176	217,506	209,785	286,697
Total.....	5,214,046	4,752,654	1,235,335	747,360	798,844	687,229
Percentage of loss.....		-8.8		-39		-14

Mr. McLAUGHLIN of Michigan. What are those letters at the head of the column—what do they mean?

Mr. SMITH. "C" means county agent; "D" means district agent. On December 1, 1918, we had 1,136 county agents and 67 district agents, covering about four-fifths of the agriculture of the North and West.

Mr. McLAUGHLIN of Michigan. Were those district agents employed to cover the counties that had county agents?

Mr. SMITH. No. They were employed to cover the counties that did not have county agents, such as out here in western Kansas and Nebraska, where one agent covered seven or eight counties.

Mr. McLAUGHLIN of Michigan. They were practically county agents with more than one county?

Mr. SMITH. Exactly. Now, this year, on December 1, 1919—I show you this to indicate the effect also of the result of decreasing the appropriations last year—we had 1,122 county agents and 11 district agents. The decrease in funds, you will notice, squeezed out the district agents, but it left practically all of the county agents.

There is a loss in the Northern States, then, of about 1 per cent in our county agents, while we lost about 83 per cent of our district agents.

In the case of the rural and urban home demonstration agents, you will remember at the time the war broke out we had about 15 of those home demonstration agents in the entire Northern and Western States, and with the emergency funds Congress gave us, amounting to over a million dollars, there were employed on December 1, 1918, 496 of rural home demonstration agents, who worked in the counties, and 101 agents who worked in the cities. There are now 234 rural home demonstration agents and 13 working in the cities.

Mr. McLAUGHLIN of Michigan. Will you tell us why you have agents working in the cities?

Mr. SMITH. Yes. Under the emergency act it was thought almost as necessary to conserve food and clothing as it was to produce it, and so Congress made an appropriation on that basis. As the city people were largely consumers both of food and clothing, it seemed desirable to extend the work to the cities.

Mr. McLAUGHLIN of Michigan. Are you continuing some of them—13 of them?

Mr. SMITH. Yes. In some cities the States have entered into obligations with those agents, and felt that the work was so important that they have continued it for the present in a few of the cities.

Mr. McKINLEY. That means the State pays most of it?

Mr. SMITH. The State pays all of it. The department contributes in those 13 cities in no case to exceed \$1, and in some cases nothing at all.

Mr. McLAUGHLIN of Michigan. You say the State pays it all, but it pays it partly, at least, out of the money they get under the Lever law?

Mr. SMITH. Yes, sir; partly out of that money.

Mr. McLAUGHLIN of Michigan. So that those are partly paid by what we call Federal money; it is a Federal contribution?

Mr. SMITH. It is a Federal contribution; some of that Federal money is being put in for city work in these 13 cities.

The loss in our home demonstration work through the year has been about 55 per cent, but what I want to stress is that at the outbreak of the war we had but 15 of those permanent women agents, and now, after two years, there remain 234 of those permanent women agents. That, we think, will increase.

The CHAIRMAN. Why were so many of the district agents dropped?

Mr. SMITH. They were dropped because there was no local financial cooperation. They were largely paid from Federal and State sources.

The CHAIRMAN. You did not have local contributions?

Mr. SMITH. They did not contribute. We made it a practice even during the war not to locate a woman in a county to be there all the time unless the county paid part of her salary and expenses.

Last year, in the club work, we had a total of 68 county club leaders out of about 1,500 agricultural counties that we have in the North. Notwithstanding the funds were decreased this year, certain populous counties in the North think well enough of the club work so that there are now 156 counties that have a county club leader who gives his whole time to the club work. The staff for county club work in the Northern States, then, has increased about 114 per cent.

This column here shows the funds that were contributed last year and this year, and shows you whether the decrease has been largest in the Eastern States, the Central States, or the Western States. The county-agent fund decreased about 8.8 per cent, although the number of counties decreased but 1 per cent. The funds for the women's work decreased about 39 per cent; and, whereas in 1917 we had about \$90,000 invested in home-demonstration work, the colleges and the local people are now putting in about \$747,000. In the club work the loss has been about 14 per cent in funds.

Mr. HARRISON. Mr. Chairman, as Mr. Knapp is here and will be busy this afternoon preparing to leave the city to take up his new work in Arkansas, I would suggest that the committee hear him now in connection with item 38, on page 218, "For farmers' cooperative demonstrations and for the study and demonstration of the best methods of meeting the ravages of the cotton-boll weevil," and so on.

The CHAIRMAN. The committee will be glad to hear you, Mr. Knapp.

FURTHER STATEMENT OF MR. BRADFORD KNAPP, CHIEF OF THE OFFICE OF EXTENSION WORK IN THE SOUTH, STATES RELATIONS SERVICE, DEPARTMENT OF AGRICULTURE.

Mr. KNAPP. Mr. Chairman and gentlemen, I would not ask to break in here, except for the fact that I am very busy getting ready to go away.

Mr. LEE. Doctor, is it true that you are going to leave us?

Mr. KNAPP. Yes; I am resigning from my position in the Agricultural Department and am going to Arkansas.

Mr. HEFLIN. I think this committee and everybody who knows anything about your work regrets very much that you are leaving.

Mr. KNAPP. I appreciate that very much, Mr. Heflin.

The CHAIRMAN. I would like to say that Mr. Heflin voices my sentiment and, I am sure, the sentiments of every member of this committee.

Mr. KNAPP. I have been very close to the farmers of the South in my departmental experience, and I suppose that nobody connected with the department is acquainted with more farmers than I am; and it is rather unique that I am laying down the job at this time, when it has been in the hands of one with my surname since its very foundation.

Mr. McLAUGHLIN of Michigan. How long was your father in the work?

Mr. KNAPP. He began this particular line of work in 1904 and died in 1911.

Mr. McLAUGHLIN of Michigan. And you immediately took up the work?

Mr. KNAPP. I was appointed by Secretary Wilson to succeed my father, whose assistant I was before he died; and I have continued in the position from that time to this.

Before I leave the Department I am going to place in the hands of Secretary Houston the history of the progress in the matter of wealth that the farmers of the South have developed under this work, not meaning that the work is entirely responsible for that, but

indicating the lines we have advocated have been followed by the farmers to their profit.

Mr. YOUNG. I believe that your father established the first demonstration of this work in my home county, in Kaufman County.

Mr. KNAPP. Yes; that is correct.

Mr. YOUNG. My people down there have a very kind remembrance and feeling toward you, but the principal regret that we have in connection with your leaving the Department of Agriculture is that Texas does not get you instead of Arkansas.

Mr. KNAPP. Thank you, Mr. Young.

Mr. McLAUGHLIN of Michigan. The work of yourself and your father has been noteworthy and very satisfactory indeed, and we are all sorry you are going to leave, and hope your work in the future will be agreeable to you and as profitable to those you are working with as it has been to the Government in the past.

Mr. KNAPP. I appreciate that very much, Mr. McLaughlin. I do not expect to serve the people of Arkansas alone, but I hope and think that my work with them will be of benefit to the people of other States as well. I am very much interested in the position to which I am going, but I know that is another matter, and I will confine myself to the particular subject which I am here to present.

The 15 Southern States comprise 45.9 per cent of the rural population of the United States. They have 49 and a fraction per cent of all persons engaged in agriculture in the United States.

The funds appropriated both by the Congress of the United States, under the direct appropriation and under the Smith-Lever Act, are practically on the basis of this 45 per cent. Dr. True will give you a little later a statement of the amount apportioned to the States, which is approximately in conformity with the rural population.

We have at the present time 916 county agents, which is less, a little over 100 less, than we had at the high point in early spring of 1919, when the emergency act was in full force.

We have, as I explained to you a few moments ago, our county home demonstration work and our boys' club work and girls' club work in those counties.

Mr. McLAUGHLIN of Michigan. Doctor, formerly you had some people employed for the club work which you have not continued. Is that work now done by the county agents?

Mr. KNAPP. We have experimented with some extra club employees in the counties, but now the club agent acts as a specialist, going from county to county to help county agents in the club activities and attend the meetings of the boys and girls and help them in the organization. They help outline a system of work. That is what they do in the main and that is the work in which these 53 are engaged. It is exceedingly interesting, and I want to put into the record a table showing the distribution of funds in the Southern States. The average salary of the county agent in the South is at the present time approximately \$2,000. The average salary of home-demonstration agents is very much less, and less than the average for the United States—a great deal less; it is about \$1,100. Many of them can not afford to work for that salary, except that they have a

certain spirit of service. Many of these women have this spirit which leads them and keeps them at work when they otherwise could not afford to continue in the work. Public-spirited citizens may furnish them with a little Ford runabout, and these people keep it up in that way and they travel around the county. In passing, I might say that many of them are graduates in home economics.

The CHAIRMAN. Does not the county usually furnish all the facilities?

Mr. KNAPP. Yes, sir, generally; they also usually have an office in the courthouse, and they get along in that way.

We have 151 negroes, extension agents, working among negro farmers. They are located mainly in counties where there is a heavy negro population and work as assistants to the white county agents. I might say that this is to the credit of the Southern people. I try to encourage them in it, and the colleges have come to the general view of cooperating with the negro colleges to try to encourage them to better work. It is gratifying to know that the negro has responded and is making material improvement both agriculturally and educationally.

The CHAIRMAN. Have you a number of negro women employed?

Mr. KNAPP. Yes; there are 51 negro women employed, and they are mainly in counties where there is a very heavy negro population. I want it understood that the white agents in the South carry on work with the negro farmers also, and the whole service helps the good negro people just as freely as they help white people. This is, I think, to the credit of the workers. I think everybody realizes the fact. I have known the agent to come to a plantation manager who would call the folks together and when they came the agent would find that they were all negro tenants; and when the county agent went in the field to go over the processes of cultivation and tell what should be done for the crop in order to make a profit, he would be giving instructions to negroes.

The CHAIRMAN. It is of as much advantage to the one as to the other.

Mr. KNAPP. Yes.

Mr. KNAPP. In this connection I desire to state that the total amount of funds for all sources in the South for extension work was \$5,530,654.98. That is the way I have it.

Mr. LEE. When was that spent; and at what time?

Mr. KNAPP. For the present fiscal year.

Mr. McLAUGHLIN of Michigan. That includes appropriations of all kinds?

Mr. KNAPP. Yes, sir; I can give you the particular items if you so desire.

The CHAIRMAN. You may insert that statement if you wish.

Mr. KNAPP. I shall be glad to do so.

(The statement referred to follows:)

Distribution of all funds for extension work in the South.

Year.	Administration.		Publications.		County agents.		Home demonstration.		Boys' clubs.		Extension schools.		Specialists.		Total.
	Amount.	Per cent.	Amount.	Per cent.	Amount.	Per cent.	Amount.	Per cent.	Amount.	Per cent.	Amount.	Per cent.	Amount.	Per cent.	
Alabama.....	\$18,876.52	4.63	\$4,839.85	1.18	\$207,495.37	50.85	\$106,735.00	26.21	\$14,450.00	3.57	\$2,000.00	0.49	\$52,730.00	12.94	\$407,222.71
1920	18,900.00	5.07	3,900.00	1.02	187,050.77	50.52	91,831.00	21.83	14,079.00	3.80	1,000.00	.27	53,520.77	14.45	370,181.54
1919	26,077.00	6.07	6,300.00	1.46	220,204.08	51.26	120,620.76	28.09	20,225.00	4.71	2,500.00	.58	53,420.00	7.78	429,318.81
Arkansas.....	26,528.88	6.54	4,045.61	.99	210,959.04	52.01	125,808.10	31.01	8,020.00	1.97	1,500.00	.37	28,440.00	7.01	405,301.83
1920	26,528.88	6.54	4,045.61	.99	210,959.04	52.01	125,808.10	31.01	8,020.00	1.97	1,500.00	.37	28,440.00	7.01	405,301.83
1919	10,072.00	4.18	2,600.00	1.08	116,081.51	48.21	93,519.11	38.86	12,100.00	5.02			6,320.00	2.62	240,642.62
Florida.....	10,205.00	5.52	3,200.87	1.73	78,070.00	42.29	72,000.00	39.00	10,708.33	5.80			10,420.00	5.64	184,601.94
1920	26,920.00	4.53	9,000.00	1.51	304,302.00	51.30	185,074.28	31.20	16,940.00	3.82	8,700.00	1.46	48,210.00	8.12	588,126.28
Georgia.....	21,800.00	5.16	11,000.00	2.29	216,497.55	45.07	144,119.65	28.93	11,700.00	2.63	8,500.00	1.76	58,480.00	12.17	480,337.61
1920	22,657.22	5.10	6,000.00	1.35	247,990.00	55.73	119,645.00	28.93	15,900.00	4.62	4,000.00	1.16	33,700.00	7.58	444,192.22
Kentucky.....	26,313.34	7.64	4,000.00	1.16	145,673.19	42.34	92,600.44	26.91	14,800.00	4.69			39,107.50	12.40	315,336.31
1920	8,619.81	2.73	2,800.00	.91	165,079.00	52.35	84,840.00	26.90	10,740.00	3.79			37,092.13	13.30	283,339.58
Louisiana.....	14,520.00	5.12	3,565.00	1.25	182,594.43	53.85	64,228.00	22.66	15,200.00	6.75			22,340.00	11.56	225,481.12
1920	23,097.95	10.24	3,200.00	1.41	97,801.00	13.37	60,082.17	26.04	17,000.00	3.99			32,340.00	17.01	190,301.93
Maryland.....	21,213.76	12.72	3,500.00	1.83	74,593.00	41.29	44,018.17	23.13	22,900.00	5.87	3,200.00	.77	58,805.00	14.31	410,670.44
1920	6,567.72	1.59	6,700.00	1.31	182,932.72	44.54	130,245.00	31.71	23,172.00	5.32	3,200.00	.77	53,790.00	12.36	434,927.76
Mississippi.....	15,080.00	3.46	5,700.00	1.65	218,645.76	50.37	115,840.00	28.51	21,790.00	4.23	13,024.00	2.53	86,420.00	16.79	514,663.50
1920	11,475.00	2.22	8,582.00	1.65	208,926.28	40.59	104,496.28	31.96	2,700.00	.62	13,024.00	2.53	86,420.00	20.45	430,544.61
North Carolina.....	16,665.00	3.87	10,446.00	2.42	203,375.12	47.23	95,338.49	22.14	24,670.00	7.14			18,680.00	5.40	345,327.84
1920	21,000.35	6.09	6,189.49	1.79	179,958.00	52.11	94,770.00	27.44	25,023.00	7.60			16,330.00	4.96	328,981.89
Oklahoma.....	19,986.66	6.07	5,296.00	1.60	159,143.23	48.37	103,203.00	31.37	15,262.00	3.45			59,231.67	16.79	412,152.01
1920	21,830.00	5.32	4,900.00	1.18	183,960.42	37.61	147,965.92	35.90	14,244.00	3.65			56,150.00	18.95	206,196.44
South Carolina.....	24,215.00	8.17	6,900.00	1.99	96,597.39	32.61	102,513.05	34.60	10,821.00	3.45			36,898.00	8.89	414,757.09
1920	32,010.00	7.71	7,920.34	1.90	183,082.70	44.14	145,236.65	35.01	3,610.00	.87	6,000.00	1.44	36,500.00	10.95	351,557.16
Tennessee.....	28,650.00	8.14	9,687.10	2.75	155,834.89	44.32	106,653.17	30.33	7,280.00	2.07			38,500.00	12.65	447,554.92
1920	31,200.00	4.86	13,089.85	1.58	414,749.13	55.48	177,570.94	22.95	15,388.00	2.18			94,578.00	18.42	700,844.62
Texas.....	34,110.00	4.76	11,086.81	1.54	360,710.19	51.46	160,912.04	22.95	11,515.00	2.64	1,100.00	.26	129,104.64	18.45	747,554.99
1920	42,272.00	9.72	5,085.74	1.17	216,785.00	49.86	100,874.20	25.50	11,515.00	2.64			37,470.00	10.84	434,781.94
Virginia.....	26,030.00	7.68	5,237.68	1.54	178,167.91	52.57	82,134.00	24.23	9,840.00	2.90			47,140.00	11.05	338,869.59
1920	17,789.01	6.51	3,320.00	1.21	132,541.00	48.54	53,100.00	19.44	26,445.00	9.68	6,670.00	2.43	33,152.00	12.14	273,017.01
West Virginia.....	24,900.81	9.51	5,650.00	2.18	117,711.81	45.51	38,260.00	14.80	27,030.00	10.68			38,445.00	14.86	268,617.62
Total.....	320,624.58	5.16	88,876.80	1.44	3,031,380.21	48.82	1,794,774.85	28.90	241,053.00	3.88	46,094.00	.74	684,462.17	11.02	6,208,275.01
1920	334,718.45	6.20	92,115.11	1.70	2,559,624.28	47.41	1,439,063.16	26.65	195,373.33	3.61	43,380.00	.80	734,310.65	13.90	6,398,614.98

Mr. KNAPP. The grand total includes the Federal Smith-Lever appropriation for \$1,343,880.42. That is exactly the 45.9 per cent. The State appropriation offsetting that is \$1,193,880. Part of that comes from counties, most of it from direct appropriations by legislatures. Some of our States in the South are poor and in debt, and can not make the full appropriations, so the counties help them out.

There is a Federal supplementary appropriation, with its proportion for these States of \$688,777.17, which in turn is offset by the States—I think entirely from county appropriation of \$688,777.17. Then there are county appropriations, beyond all those used for offsets, of \$801,718.80. There is also the distribution from the direct appropriation to my office of \$522,600 of money that is apportioned to the States. The amount of this \$645,000 for extension work in the South. Of that, \$522,600 is apportioned directly out to the States.

Mr. McLAUGHLIN of Michigan. Out of the \$645,000? What is done with the rest of that?

Mr. KNAPP. A portion is used for the administrative expenses of the office in Washington and for the employment of persons to cooperate with the States, just as Dr. True testified.

The CHAIRMAN. The \$5,530,654.98 includes all those items?

Mr. KNAPP. Yes, sir. That total fund represents the following:

The total for administrative expenses at the colleges, 6.20 per cent.

For cost of publications, 1.70 per cent.

For agricultural county agents, 47.41 per cent.

For home demonstration agents, 26.65 per cent.

And as I described it to you, the last item consists of practical work, much of it home economics; much of it directly agricultural.

Mr. McLAUGHLIN of Michigan. Those different percentages which you give run 74 per cent, practically 75 per cent.

Mr. KNAPP. Then the boys' club work, being about 3.61 per cent, which added to that gives a total and makes 78 per cent, nearly 79 per cent, or nearly 80 per cent of the funds is used in this truly practical work in the counties. Only 13.60 per cent is used for specialists. That could be given for each separate fund—that is, for the Smith-Lever fund and other funds. It would give the cost for the total.

As your representative, gentlemen, I only want to say this: I personally have carried a campaign of education to our southern farmers, especially in the cotton territory, since the beginning of the war in Europe, which I called "safe farming," by which we mean all that diversification means and more—a system through which they produce their own food and feed as a measure of safety under the shifting circumstances of the European War and our own participation in it, and produce their cotton as a surplus of cash. Cotton has been largely changed into an actual cash crop rather than a living or credit crop. In proportion as they have progressed along that line they have prospered. I think a large part of the success and prosperity of our cotton growers is due to the fact that the South has increased its other crops rather than the mere fact that cotton seems to be high in price.

When cotton was 30 cents a pound many of the farmers of the South thought it was a pretty high price, but at that time you could not buy more of the products or of the supplies necessary to sustain life, feed the live stock, etc., than when cotton sold for 12 cents a pound, because other things had gone up in proportion as cotton had

gone up; and it was that very great and significant fact that my office and myself, personally, and my assistants, carried to the farmers of the South. We published and used tables of comparison of purchasing power of cotton at different times to show them that the situation was very deceiving unless they realized that the prices of other things had gone up in proportion as cotton had gone up.

If you take the figures of the December Crop Reporter, you will find that, while the value of the total cotton crop is estimated at \$2,353,193,000, the value of the other crops produced in the 11 cotton States is \$3,016,985,000. If they had to spend their cotton money to buy the food and forage and meat and flour and these other things, the Southern States would not be as prosperous as they are to-day.

Mr. YOUNG. It might be interesting in this connection for me to say that Texas became the second corn State this year.

Mr. KNAPP. Yes; Texas was a wonderful corn-producing State this year.

I myself feel that the idea of a public officer in the county, trained in agriculture, to represent the United States Department of Agriculture and to represent the college of agriculture also, working in a practical way with farmers, has been "put across," if I may use a slang expression; that is, the people have taken hold of this idea and are making use of this servant, the county agent, in the county.

We in the South have not developed, possibly, as quickly as in the North and Northwest in organized effort in the counties, but our counties are rapidly developing a system of organization to help in the extension work in the county. The farmers get together in communities and try to work out their own problems with the aid of the county agents. For example, farmers may say, "What are the things that are bothering us here?" Let us say they are having trouble because their cotton does not produce well. When they have talked it over they will want the county agent to put on a system of demonstrations to show what is the best variety of cotton. Our department and the colleges ought to know what is the best variety of cotton that will be uniform in production and best for marketing. You see, I am giving that as a rough illustration as to how this problem of organization works out and how extension work relates itself to these local needs.

Here is the problem of the hog production and marketing, which is increasing in the South. When more hogs were produced we immediately were confronted with the proposition of marketing hogs, as farmers in the South had little experience along that line. So they said, "Mr. County Agent, we must know how to market these hogs." The county agent may not have had any considerable experience in the marketing of hogs. He calls on the Bureau of Markets, and an expert from the Bureau of Markets comes to the county, works with the county agent, and helps farmers to learn how to market hogs through cooperative shipping associations. Extension work, of course, is to meet the problems as they come up—not to go out with the idea that you must approach men who are not confronted with difficulties because a man who is not confronted with difficulties may not care to give the county agent a hearing. But there are plenty of problems coming up, and it is to meet those problems when they come up that the county agent should be on

the job and work with organized groups of farmers in solving their problems. They all feel that this is a strong combination for bringing organized, practical knowledge to farmers.

On the other side, here is the problem of home life, of satisfactory home life, and the recognition of the practical side of the farm woman's part in agriculture. I often use the illustration, Mr. Chairman, of my wife's aunt who lives in Buena Vista County, Iowa. Her income, which came from her own effort, before the war—in normal times—was between \$400 and \$500 on things around the farm to which she devoted her efforts, like her poultry flock, her garden, and her orchard. The people in that community recognized her as a good business woman. Her life is happy because she has these industries on the farm which belong to her and from which she receives an income belonging to her, as her husband receives income from crops and live stock.

I have taken some ideas from the experience of my own mother upon the farm and my own wife and have developed them into this home work to make the life better for the farm woman by adding industries which bring an income. You realize that in the city we are taking away some of the industries to relieve the woman of work so that she can seek other remunerative employments. Rural conditions will not permit that. In order to have gainful work for the woman, you must take the work to her, and that is what we are trying to establish in the South through gardening and canning and selling of the surplus product, the home curing of meats, the development of good home orchards, and the sale of surplus product from them, and especially the care of poultry and the marketing of the poultry and egg surplus. Then there is question of the use of more milk. We have this work with the man and the woman together. We need more family cows in the South. We need more milk in the diet, more home butter making, some cheese making, and other things, even developing ultimately into some dairying, which we might advance in the South and which we are getting to do quite rapidly.

I have tried to give you a little insight or little view of the facts as to how the work has been developed.

The CHAIRMAN. You have pointed out the importance of diversified farming, which makes the farm self-supporting. Instead of spending all the money received from the sale of the cotton crop on corn or for other things, they produce practically enough to meet all needs on the farm?

Mr. KNAPP. Exactly.

The CHAIRMAN. They are making progress along that line?

Mr. KNAPP. I judge so, because, you see, the other crops amount to more than the cotton crop.

Mr. McLAUGHLIN of Michigan. Most people do not realize that?

Mr. KNAPP. That is correct.

Mr. McLAUGHLIN of Michigan. Have you any figures showing the increase in other kinds of products?

Mr. KNAPP. Yes; I can give that to you. It is in a report to the Secretary; and I will be very glad to furnish the committee with the increase from 1911, when my father died, or even from the 1910

census up to the present time. I will furnish the increases in these other things besides the cotton.

The CHAIRMAN. For instance, some States that formerly imported practically all their corn now are exporting corn?

Mr. KNAPP. Let me give you an illustration: Alabama, according to the 1910 census, in that year had a corn crop of approximately 20,000,000 bushels of corn. For the last three years the crop has run above 60,000,000 bushels. The highest year was about 77,000,000 bushels. It would be interesting to know that in Alabama, in the 1910 census, the average per farm was 18 acres of cotton and about 8 acres of corn. At the present time the average farmer in Alabama has about 8 acres of cotton and 18 acres of corn.

Mr. McLAUGHLIN of Michigan. And they find it profitable?

The CHAIRMAN. Is that due to the cotton-boll weevil?

Mr. KNAPP. Yes, sir.

The CHAIRMAN. Of course, corn can be produced at much less expense than cotton.

Mr. KNAPP. Yes, sir. Then they have other crops—the peanut, soy beans, and hay, and the acreage of those products has more than doubled in the South.

The CHAIRMAN. They hog the peanut?

Mr. KNAPP. They hog it; in a large measure it is hogged down.

Mr. LEE. In Virginia and North Carolina the crop is harvested and marketed.

Mr. KNAPP. Yes; but they are now harvesting the product and marketing it in some sections for crushing out the oil as well as eating. The peanut yields a good oil, which should go into commerce, while the peanut cake is good feed—just as cottonseed cake is good feed. The same is true as to the soy bean when they express the oil.

Mr. LEE. This report, which you propose to make to the Secretary—is it a very short report?

Mr. KNAPP. It will be very short. I will summarize the progress of the agricultural work in the South during the last 8 or 10 years.

Mr. LEE. I suggest, with the permission of the Secretary, that your report to the Secretary be incorporated in your statement.

Mr. McLAUGHLIN of Michigan. If the Secretary thinks we ought to have it, we would be very glad to print it in the hearings.

The CHAIRMAN. Is it in printed form now?

Mr. HARRISON. It is in typewritten form now. We lack funds for printing it.

The CHAIRMAN. If it is not very long, we would like to have it printed in connection with and as a part of your statement before the committee. I think it would be very well to incorporate it.

Mr. KNAPP. I can summarize it so that it can be printed.

I appreciate the opportunity, Mr. Chairman, of appearing before you and the many courtesies that have been extended to me in the last eight or nine years by this committee. I very deeply appreciate them. If I come before you again, it will be as the representative of the State of Arkansas. [Applause.]

The CHAIRMAN. We wish you success, Mr. Knapp. The committee will take a recess until 2 o'clock p. m.

(Thereupon, at 1 p. m., the committee took a recess until 2 o'clock p. m.)

(The report referred to above is as follows:)

REPORT OF BRADFORD KNAPP, CHIEF OF THE OFFICE OF EXTENSION WORK IN THE SOUTH, STATES RELATIONS SERVICE, DEPARTMENT OF AGRICULTURE, TO THE SECRETARY OF AGRICULTURE, JANUARY 12, 1920.

At the time of the death of my father the system of carrying instruction and information to farmers by the appointment of county agricultural agents was fairly well established. These agents operated mainly by securing farmers to act as demonstrators and advising them regarding production of crops and the feeding of live stock. The fundamental principle of instruction through practical demonstrations was well established. This principle has been continued as the one great cornerstone of the work from that day to this. At that time there was no cooperation with any of the agricultural colleges in the Southern States, except in the boys' club work in a few States like Louisiana, Arkansas, Alabama, Georgia, and North Carolina. There were no county organizations through which the county agents tried to reach the largest possible number of farmers and through which he could make his work more effective, though there were many incipient community organizations growing up through the leadership of local demonstrators, where the farmer demonstrator became the local leader. At that time quite a number of the States had begun to recognize this activity as an important contribution to the entire educational system. Laws had been passed in a number of the States authorizing appropriations to assist in the work.

In April, 1911, there was no work of this character in the Northern States.

In April, 1911, there were in the Southern States 578 county agents, 3 women agents, and about 8 boys' club agents, less than half of whom worked full time. Many of these agents were practical farmers with large experience and good executive ability.

I have thought it wise to make a slight record of the progress and growth of extension work in the South and the effect of this work upon the agriculture of the South during the time I have held the office, first of special agent in charge of the office of farmers' cooperative demonstration work and afterwards of chief of the office of extension work in the South.

In April, 1911, the full amount of funds from all sources invested in this work was \$448,697.06, of which the Federal Government appropriated \$259,075; the General Education Board appropriated to the department for use in this work as it saw fit \$113,000, and local counties, farmers, bankers, etc., appropriated \$76,622.06. I give these figures because they are interesting in comparison with the present situation. In 1911 there were only 12 States in the southern territory, Maryland, West Virginia, and Kentucky being added to our territory in 1913.

At the present time, January, 1920, in the 15 Southern States there are 15 directors of extension; 83 assistant State leaders and district agents who supervise the work of the county agents; 916 county agents and assistants; 151 local agents (colored); 15 State home demonstration agents; 73 assistant State home demonstration agents and district agents; 596 county home demonstration agents; 51 local home demonstration agents (colored); 15 State boys' club agents; 17 assistant State boys' club agents; 21 county boys' club agents; and 262 specialists, making a grand total of 2,215 persons employed in extension work in the 15 Southern States.

I have given the finances for 1911. It is interesting to compare those figures with the present situation. The total amount of all funds for extension work in the 15 Southern States at the present time is \$5,530,654.98, consisting of \$645,040 which is the direct appropriation to the United States Department of Agriculture for farmers' cooperative demonstration work in the Southern States; \$1,343,880.42 Federal Smith-Lever funds; \$1,193,880.42 State Smith-Lever funds; \$688,777.17 supplementary Smith-Lever fund appropriated by Congress; \$688,777.17 offset to supplementary Smith-Lever fund; \$801,718.80 county funds not used as offsets; and \$168,581 from other bureaus of the department. The total amount of appropriations made by counties, part of which is used as Smith-Lever and supplementary Smith-Lever offsets as scheduled above, is \$1,515,770.63. This figure is given for the purpose of comparison with \$76,622.06 appropriated from local sources in the South in 1911.

SAFE FARMING.

You are familiar with the fact that this work was originally designed to assist the Southern cotton farmer to meet the problems brought about by the advent of the cotton-boll weevil. Among the things advocated was what was called "diversified agriculture." The production of corn and other crops and some live stock was at the very beginning of the work a part of the program.

In 1914, under the crisis brought about by the war in Europe and the low price of cotton, I advocated a general plan for each farm in order that the farm might be self-sustaining. I did not conclude to call that plan "safe farming" until in 1915. In its simplest form that program is as follows:

First. A home garden for every family, including potatoes, and some cane or sorghum for sirup.

Second. Corn enough to supply the family and the live stock for a year, with an ample surplus for safety's sake.

Third. Small grain to supplement the corn for food and feed and to cover the soil in winter and prevent erosion.

Fourth. Hay and forage crops, including the legumes for soil improvement. These to supply the forage and pasture for all live stock.

Fifth. Sufficient meat, eggs, and milk for the family by increasing the production of hogs, cattle, and poultry and the keeping of at least one, and better two, cows for every family.

Sixth. The production of cotton on the balance of the acres, to be sold as a cash crop.

Seventh. The paying of the family expenses out of the surplus products of the farm other than cotton, thus saving the cotton for cash sale and a real bank account.

What we have been after is to make farming profitable, believing that in the profit to the farmer would come the prosperity of the rest of the South.

RESULTS.

In 1910 the acreage in cotton in the Southern States was 32,403,000 acres, and in 1919 it was 33,344,000 acres; the production in 1910 was 11,609,000 bales, and in 1919 it was 11,039,000 bales. It should be added that 1919 was a poor cotton year.

The acreage in corn in the 11 cotton States in 1910 was 34,119,000 acres, and in 1919 it was 36,881,000 acres; the production in 1910 was 664,752,000 bushels, and in 1919 it was 730,624,000 bushels, an increase of practically 66,000,000 bushels. For the 15 Southern States the acreage in corn increased from 40,939,000 acres in 1910 to 43,209,000 acres in 1919, and the production increased from 856,542,000 bushels in 1910 to 911,327,000 bushels in 1919.

The acreage in wheat in the 11 cotton States in 1910 was 3,914,000 acres, and in 1919 it was 8,278,000 acres; the production has increased from 55,120,000 bushels in 1910 to 107,837,000 bushels in 1919. Taking the entire 15 Southern States, the acreage in wheat increased from 6,274,000 acres in 1910 to 11,574,000 acres in 1919; and the production increased from 88,034,000 bushels in 1910 to 148,439,000 bushels in 1919.

The acreage in oats in the 11 cotton States increased from 3,378,000 acres in 1910 to 6,727,000 acres in 1919, and the production increased from 90,577,000 bushels in 1910 to 203,505,000 bushels in 1919. In the entire 15 Southern States the acreage increased from 3,908,000 acres in 1910 to 7,662,000 acres in 1919; and the production increased from 103,490,000 bushels in 1910 to 225,255,000 bushels in 1919.

The hay acreage in the 11 cotton States increased from 2,776,000 acres in 1910 to 6,959,000 acres in 1919; and the production increased from 3,428,000 tons in 1910 to 9,977,000 tons in 1919. In the 15 Southern States the acreage increased from 4,717,000 acres in 1910 to 10,434,000 acres in 1919; and the production increased from 5,841,000 tons in 1910 to 15,033,000 tons in 1919.

The acreage in Irish potatoes in the 11 cotton States increased from 246,000 acres in 1910 to 404,000 acres in 1919; and the production increased from 17,503,000 bushels in 1910 to 31,066,000 bushels in 1919. In the 15 Southern States the acreage increased from 431,000 acres in 1910 to 709,000 acres in 1919; and the production increased from 35,033,000 bushels in 1910 to 57,901,000 bushels in 1919.

The acreage in sweet potatoes in the 11 cotton States increased from 520,000 acres in 1910 to 898,000 acres in 1919; and the production from 46,502,000

bushels in 1910 to 87,816,000 bushels in 1919. In the 15 Southern States the acreage increased from 580,000 acres in 1910 to 966,000 acres in 1919; and the production from 52,419,000 bushels in 1910 to 96,156,000 bushels in 1919.

Kaffirs (grain sorghum, millo maize, feterita) have come in as a new crop. In west Texas and Oklahoma where we have been instrumental in introducing these crops in place of corn, which is an uncertain crop under drought conditions, the Bureau of Crop Estimates gives the figures for the years since 1915. The acreage in 1915 in these two States was 2,488,000 acres, and in 1919 it was 3,238,000 acres; the production in 1915 was 70,950,000 bushels, and in 1919 it was 92,454,000 bushels.

LIVE STOCK.

The number of milch cows on farms in the 15 Southern States in 1910 was 5,654,000, and in 1919 the number was 6,257,000; the number of other cattle was 13,744,000 in 1910 and 12,908,000 in 1919; and the number of swine was 18,376,000 in 1910 and 24,082,000 in 1919.

Some of the significant increases are the increases of hog production in Florida by 86 per cent; Mississippi, 76 per cent; Alabama, 75 per cent; and Georgia, 70 per cent.

These figures are presented because they show an agricultural revolution which I believe to be the most significant and definite change of agriculture in any similar period of time in any section of this country, and I believe that the earnest, persistent, and continuous effort of this service has had a very material part in this change.

In these years the wealth of the South has materially increased. The bank deposits of 11 cotton States, as shown by the report of the Treasury Department in June, 1910, including both State and Federal banks, were:

11 cotton States.....	\$854, 466, 450. 39
15 Southern States.....	1, 427, 691, 583. 06

The last report of the Treasury Department (June, 1918). shows the bank deposits as follows:

Alabama.....	\$134, 663, 000	Kentucky.....	238, 300, 000
Arkansas.....	120, 374, 000	Maryland.....	383, 040, 000
Florida.....	109, 589, 000	Virginia.....	261, 771, 000
Georgia.....	235, 410, 000	West Virginia.....	215, 066, 000
Louisiana.....	211, 306, 000		
Mississippi.....	117, 132, 000		
North Carolina.....	169, 173, 000		
Oklahoma.....	275, 944, 000		
South Carolina.....	129, 853, 000		
Tennessee.....	227, 019, 000		
Texas.....	480, 940, 000		
Total, 11 cotton States.....	2, 211, 403, 000	Total, 15 Southern States.....	3, 309, 580, 000

It is interesting to compare the value of the cotton crop and other crops grown in the South in 1910 and 1911 with the value of the same crops in 1919. The total value of the lint cotton in 1910 was \$820,407,000, and in 1911 it was \$687,888,000. The value of 12 other crops, including corn, wheat, oats, barley, rye, buckwheat, flaxseed, rice, potatoes, sweet potatoes, tame hay, and tobacco, in the 11 cotton States for 1910 was \$623,895,000, and in 1911, \$650,608,000. In 1919 the value of the lint cotton in the 11 cotton States was \$1,967,143,000, and the value of the 12 other crops, \$2,164,331,000.

In addition it might be said that since 1914 the Bureau of Crop Estimates has been estimating the total value of the entire cotton crop, both lint and seed, with the value of all other farm crops in the 11 cotton States. The value of the entire cotton crop in the 11 cotton States in 1914 was \$677,986,000, while the value of all other farm crops in these same States was \$1,020,597,000; in 1919 the value of the entire cotton crop was \$2,353,193,000, and the value of all other farm crops, \$3,016,985,000.

These figures indicate the very distinct change in the agriculture of the cotton States in spite of the very high price of cotton. At the present time the value of other farm crops in the 11 cotton States far exceeds the value of the entire cotton crop. In these figures nothing is included regarding the value of live-stock production.

AFTER RECESS.

The committee reassembled at 2 o'clock p. m., pursuant to recess, Hon. Gilbert N. Haugen (chairman) presiding.

The CHAIRMAN. You may proceed Dr. True.

STATEMENT OF DR. A. C. TRUE, DIRECTOR OF THE STATES RELATIONS SERVICE, DEPARTMENT OF AGRICULTURE—Continued.

Dr. TRUE. Mr. Chairman, do you desire that I should make any further statement as to the work in the Southern States, under item 38?

The CHAIRMAN. I think you have covered that sufficiently. Do just as you wish.

Dr. TRUE. I have the figures here, just as I gave them for the Northern States. I can put them in the record without reading them, if you desire.

The CHAIRMAN. If you have anything that has not been covered it may be inserted.

(The statement referred to follows:)

GENERAL STATISTICS REGARDING EXTENSION WORK IN THE SOUTHERN STATES.

The field force of the southern extension office consists of cooperatively employed extension workers classified as follows:

Extension directors and State leaders.....	29
Assistant State and district leaders for county agricultural agents.....	68
County agricultural agents.....	916
Negro agents.....	151
Assistant State and district leaders of home demonstration agents.....	88
County home-demonstration agents, including 51 negro women agents.....	647
State leaders of boys' club work.....	32
County club leaders.....	21

Total number of cooperative employees..... 1,952

The Federal, State, and county funds used in cooperative extension work this year in the 15 Southern States amount to about \$5,352,000. The southern extension office has a share in the administration and conduct of all the work in which those funds are used.

The following examples will partially illustrate the material value of this work as distinguished from its much broader educational value:

In 1918, 317,509 southern farmers conducted on their own farms demonstrations with the aid of the county agents and extension specialists. The largest acreage with these demonstrations was with corn, with which more than 70,000 demonstrators cultivated a total of 774,449 acres, with an average yield of 35 bushels per acre, which is more than double the average of the whole territory.

The county agents helped the southern farmers in bringing in 12,647 pure-bred dairy cattle, 10,775 pure-bred sheep and goats, and 42,864 hogs for breeding purposes. They helped the farmers in protecting 4,778,141 head of live stock against diseases. They conducted demonstrations in the proper care and saving of manure on farms, estimated to involve 10,000,000 tons, and induced 2,156 communities or organizations of farmers to purchase fertilizer cooperatively, an estimated saving of \$532,106.

They instructed farmers in improved methods of marketing and purchasing a variety of products, and the value of the articles dealt with by the farmers as the result of this work was \$17,156,232, with a saving of \$2,834,067, or about 16 per cent.

The total number of containers of vegetables and fruits put up during 1918 by southern women and girls under the direction of the home-demonstration agents was 64,604,531, valued at \$15,566,456.

The total production of the 407,540 boys enrolled in clubs in the Southern States was valued at \$12,034,271. The average yield per acre of corn grown by club members was 42.8 bushels, as compared with an average per acre for the Southern States of 19.4 bushels.

Dr. TRUE. We come next, I think, to item 39, on page 219, which is the appropriation for cooperative extension work under the terms of the Smith-Lever fund. It is commonly spoken of as the supplementary extension fund.

The CHAIRMAN. You are asking for an increase of \$59,420 in the statutory roll, and then there is the \$500,000 increase under the Smith-Lever Act.

Dr. TRUE. The increase in the statutory roll is apparent and not actual. Counting the transfers to the statutory roll under item 36, there is an increase of \$10,000 in that item.

Mr. HARRISON. The total net increase in the States Relations Services is \$62,720.

The CHAIRMAN. That is net?

Mr. HARRISON. That is the net increase. It is indicated on page 6.

The CHAIRMAN. That is in addition to the \$500,000 increase under the Smith-Lever Act?

Mr. HARRISON. That is not carried in this bill.

The CHAIRMAN. It is an increase for the States Relations Service.

Mr. HARRISON. The additional \$500,000 becomes available next year under the terms of the Smith-Lever Act.

The CHAIRMAN. I refer to this \$500,000 that you have under the Lever Act. We gave you a supplementary appropriation of \$1,500,000 last year. This year you get \$500,000 additional under the permanent appropriation. To make the appropriation the same this year as last should we not drop off \$500,000 here to make it correspond?

Dr. TRUE. The reason for keeping that at the present figure is that we have not yet by any means covered the country with this extension system. We have at present only 2,000 counties which have a county agricultural agent and a little over 800 counties which have a home-demonstration agent; so that we need considerably more money to develop the system to its completion.

The CHAIRMAN. Would it be possible to keep down some of the expenses in connection with the specialists and the work other than that of the county agents, which involve large appropriations, and still cover the field?

Dr. TRUE. We do not feel that that would be in the interest of the work.

The CHAIRMAN. Taking into consideration the present condition of the Treasury and the heavy demands upon it, the contention seems to be general in Congress that we should hold down appropriations in so far as it is possible and practicable to do so. Under the circumstances I take it that, though we might wish to increase many of these items, we will probably not be able to come up to the expectation of the department as suggested in its estimates.

Dr. TRUE. We feel, with reference to this matter, that the extension work, in its results, is adding very materially to the wealth of the country.

The CHAIRMAN. I do not believe anybody questions the value of the system.

Dr. TRUE. We have entered upon an era of peace and agricultural development in this country, and it would seem unfortunate not to go on and complete this great popular educational system. We can not do that unless from year to year for a number of years we have additional funds to enlarge the work and supply, in a reasonable time, the counties with the agents who are needed to do this work.

The CHAIRMAN. I do not think there is any question but that you are doing good work; but, taking everything into consideration, if this committee is to follow other committees—

Mr. HARRISON. You know, Mr. Chairman, there was a cut of about \$2,800,000 in the estimate of the department for extension work last year. We asked for approximately \$4,500,000 and we got only a total of \$1,700,000.

The CHAIRMAN. Yes; yet this committee was criticized for its extravagance.

Mr. HARRISON. Of course, many items may be criticized, but the question is whether they can be justified, and we feel that the committee can fully justify the continuance of this appropriation. One of the principal reasons for it, as I understand it, is the greatly increased cost of the work under the Smith-Lever Act.

The CHAIRMAN. I appreciate that.

Mr. HARRISON. I think that the States Relations Service has some statistics showing the extent to which the cost of maintaining the work in the counties has increased during the past three or four years. It may have been true that, when the Smith-Lever Act was passed, the amounts provided by it were thought to be sufficient to develop the organization as rapidly as it should be developed, but the increased cost of everything has made necessary additional appropriations.

And then, too, we were faced with the necessity of greatly extending the organization during the war, and it seemed to the department that it would be decidedly unwise and uneconomical in the long run to dismantle it at the end of the emergency period and build it up again through a series of years. I hope the committee will bear these things in mind in considering this particular matter.

The CHAIRMAN. It should be borne in mind, and I am not questioning the service. It is just a business proposition.

Mr. HARRISON. We tried to help the committee by eliminating more than \$4,000,000 from the estimates submitted by the various bureaus, hoping that it would not be necessary for the committee to make any further reductions.

The CHAIRMAN. If we are to follow other committees, it will be up to us to cut appropriations, instead of increasing them.

To how many counties do you expect to extend the service? You cut down the number; was it because of lack of funds?

Dr. TRUE. Yes; since the emergency service was withdrawn, we have lost more than 400 counties.

The CHAIRMAN. Were you not able to supply agents, or were there no requests for them?

Dr. TRUE. We could not supply them with the agents. You understand, we do not in any case pay the complete amount for the service of an agent. The counties did not feel able to contribute enough, with what contribution we might have made, to support an agent in those counties, and so the work was withdrawn.

The CHAIRMAN. The general plan is a 50-50 proposition?

Dr. TRUE. Yes; at least that; and what we hope, of course, is that in the years to come many of those counties will find themselves in a position to cooperate with us and will be able to employ agents.

The CHAIRMAN. In the current year, how many counties have been able to meet the Federal Government in appropriations?

Dr. TRUE. We have the 2,000 counties. I do not know just what I can say more than that—that we have those 2,000 counties which are cooperating with us now.

The CHAIRMAN. Have you met every demand?

Dr. TRUE. So far as I know, we have.

The CHAIRMAN. What reason have you to believe that the demand is going to increase next year?

Dr. TRUE. We expect that we will have more. It is a matter of the funds which the county government has and also a matter of the farmers themselves getting together in their farm bureaus or otherwise and making contributions to this work. That sort of thing is going on all the time, and we certainly hope that we are going to organize all the agricultural counties that ought to have these agents, after a reasonable time.

The CHAIRMAN. You were able to take care of them fairly well last year, and you will be able to do so for the current year?

Dr. TRUE. In the 2,000 counties, yes, sir.

Mr. McLAUGHLIN of Michigan. One thing that attracts my attention is the amount of money that is spent for administration. Under item 37, for \$715,720, are shown on page 217 the places that are to be filled. I suppose the higher-priced men are those employed in administration—the agriculturist and chief, the agriculturist and assistant chief, the agriculturists, extension specialists, scientific assistants, and so on down to the agents. I suppose most of those, if not all, down to the agents, are those, you might say, who are employed in the administration of the fund. Is that true? Have you in mind, now, what is shown on page 217?

Dr. TRUE. Yes; on page 217. That includes the maintenance of the northern extension office.

Mr. McLAUGHLIN of Michigan. The maintenance of the office, then, costs about \$75,000?

Dr. TRUE. As I explained yesterday, a portion of that money is for employees who are engaged in what may be called the supervisory work. Others are engaged in our field work, going out into the States to aid in the organization and conduct of the work in the counties. I think Mr. Smith has a table that shows more exactly and more clearly just what you want to know with reference to that matter.

FURTHER STATEMENT OF MR. CLARENCE B. SMITH, CHIEF OF THE OFFICE OF EXTENSION WORK IN THE NORTHERN AND WESTERN STATES, STATES RELATIONS SERVICE, DEPARTMENT OF AGRICULTURE.

Mr. SMITH. This table shows a total of \$751,280, and the plan for expenditures this year. This \$57,000 is for supervision. I will show you this chart here containing the items, and then will show you the details of that in the next chart.

Office of extension work, north and west—Allotment of funds for supervision and field work, 1919-20.

	In Washing- ton.	State allot- ments.
Supervision (2), 1 ¹	\$57,300	\$35,000
Field staff:		
County agent work (6), 2 ¹	37,000	300,000
Home demonstration work (5), 6 ¹	30,215	100,000
Boys' and girls' club work (5), 7 ¹	29,180	103,825
Farm management work (2).....	8,500	36,000
Subject-matter specialists (3).....	14,260	
Total.....	176,455	574,825
		751,200

¹ Decrease in staff over year 1918-19.

² Envelopes.

Allotments for field work in States..... 76.5 per cent

Mr. SMITH (continuing). For the field staff in our county agents' work we have now a staff of six people. That is a decrease of two during the year. The cost is \$37,000. And for the county agents' work we are allotting the States \$300,000.

Mr. McLAUGHLIN of Michigan. What is the county agents' work? What is the \$37,000 for?

Mr. SMITH. That is for the force here in Washington who deal with the county agents' work in the States.

Mr. McLAUGHLIN of Michigan. That \$37,000 is spent in Washington?

Mr. SMITH. Yes; they have headquarters here. Dr. True explained that. They are the force that keep in touch with the States and act as a clearing house of information for the States on that work, and many of them spend a large share of their time in the States.

Mr. McLAUGHLIN of Michigan. What is the meaning of the figure "6" in parenthesis there in the table?

Mr. SMITH. That means we have now a staff of six on that work, a decrease of two from the preceding year.

Mr. McLAUGHLIN of Michigan. And those people get that \$37,000?

Mr. SMITH. No; that is divided between the clerical staff and the staff that goes into the field. In the next chart I will show you the details of that.

Mr. McLAUGHLIN of Michigan. But you have carried that in the column "in Washington."

Dr. TRUE. When Mr. Smith speaks of six people, he means six scientific or technical employees who have their headquarters here, who go into the field from here and spend most of their time in the field, working with the people in the States and counties.

Mr. SMITH. You see, as we are putting \$300,000 into county-agent work and carrying that on throughout the States, we need to keep in touch with that work; we need to have some one here who is studying that work in the field and who keeps us informed as to the success of it and the progress of it in the field. You will appreciate, too, that in dealing with any group of people some take hold of the work much more efficiently than others do; and the efficient methods of one State are carried by this group to another State. They are the carrying group.

Mr. McLAUGHLIN of Michigan. Have you the figures showing the amount of money used in Washington?

Mr. SMITH. Yes, sir; I have. There is the total amount [indicating on chart].

Mr. McLAUGHLIN of Michigan. But you say that these, many of them, go outside of Washington.

Mr. SMITH. Yes, sir; and the only way I can get at the time they spend in the field is to estimate it. While these men are here they are preparing material for the use of the field staff, so that they are working for the field practically all the time.

Mr. McLAUGHLIN of Michigan. You have a large number who remain in Washington most of the time?

Mr. SMITH. I will show you that in my next chart. Let us consider this large division of the funds first. The first column [indicating on chart] shows the money spent for a staff located at Washington and the second is the amount of money that goes out into the field and is spent in the field. For supervision of home-demonstration work we have a force of 5 people here, and you will remember that they deal with the work in 33 States, an average of 1 woman to 6 States [indicating on chart].

Mr. McLAUGHLIN of Michigan. But she is out in the field?

Mr. SMITH. Yes; and this county-agent staff are out in the field dealing with those 33 States, an average of about 5½ States for each member of the county-agent staff.

Then we have five on the staff of the boys' and girls' club work. That is a decrease of seven over our war-time work.

In our farm demonstration work we are spending \$36,000 in the field. Some 24 men, cooperatively employed with the States, spend all their time in the field.

Here are the subject-matter specialists, amounting to \$14,260.

Mr. McLAUGHLIN of Michigan. What do they do?

Mr. SMITH. They work mostly in the field. For the most part they are cooperatively employed by the various bureaus of the department. I will explain what I mean: Under the Smith-Lever Act the colleges are obligated to put up their plans for work each year to the Department of Agriculture. We will say they send in plans for carrying on their dairy work. That project comes to our office for approval. The question comes up, Is the work well planned in the States? Has it taken into consideration what the Department of Agriculture has to extend on dairying in the States? I may not be familiar with that, so we make an arrangement with the Dairy Division whereby they will lend us a man, they paying his salary, to advise us on that project. They look over that project and take into consideration what the department has to expend on that subject, and, relying on their judgment, we pass upon the project as submitted. But it is not enough just to pass upon it as a paper project.

The question is, What was done on the project in the field and to help the people; and so this department specialist who reviews the project also visits the field and studies in the field how that dairy work is organized and how is it being extended through the county agents, through home demonstration, through farmers' agencies, through extension schools, etc. He may even visit the work in the counties to see how it is being carried on with the farmers themselves. He finds out what kind of extension material is used in the demonstration work and what the publicity is, bulletin material used, and all that. Then this department specialist may go on to the next State

that may have a dairy project and studies the method of organizing and carrying on the project that they have there; and as he goes from State to State he carries with him the best practices of each for the common benefit of all. So we have an arrangement with the bureaus whereby we pay traveling expenses of those specialists on account of the services that they render the States Relations Service, which is administering the Smith-Lever Act. It sometimes happens that the department has funds from Congress to carry that work on as a subject-matter enterprise.

We look upon the Dairy Division specialist as an authority on the subject matter, while the States Relations Service is more of an authority on the conduct of the work, to see how to get it into the field through demonstration methods. So that, while funds are provided for specialists, it covers work that these men do both in Washington and in the field—out in the States. The total amount, then, that is spent for the force, with headquarters in Washington, is \$176,455, and in the States \$574,825, or 76.5 per cent in the 33 States.

Mr. McLAUGHLIN of Michigan. About that State allotment, what does that mean?

Mr. SMITH. That means that we have allotted to the States \$300,000 for county-agent work. That goes toward the employment of the leaders of county-agent work and also directly into the county itself.

Mr. McLAUGHLIN of Michigan. Each State has a director?

Mr. SMITH. Yes.

Mr. McLAUGHLIN. How is he paid?

Mr. SMITH. The director is paid entirely from State funds. This may be either college funds or State Smith-Lever or Federal Smith-Lever funds. But let us get that one point clear, that if Federal money goes into the State under the provisions of the Smith-Lever Act it becomes State money, and those men are not the employees of the Department of Agriculture. They do not have our commission. They are entirely State people.

Mr. McLAUGHLIN of Michigan. Now, we will take a State agent.

Mr. SMITH. He is paid from State funds. Under him comes a man who is in charge of the county-agent work. We cooperate—

Mr. McLAUGHLIN of Michigan. Pardon me; let me understand how that State agent is paid. I know only one of them—Dr. Mumford, in Michigan.

Mr. SMITH. Yes.

Mr. McLAUGHLIN of Michigan. How is he paid?

Mr. SMITH. The county-agent leader is paid now \$1,500 from this direct fund to the United States Department of Agriculture and the remainder of his salary and expenses entirely from the college, which may be from any fund that they have available for that purpose.

Mr. McLAUGHLIN of Michigan. And out of one fund you contribute \$1,500 toward Dr. Mumford's salary?

Mr. SMITH. Just let me make a general statement there.

Mr. McLAUGHLIN of Michigan. Very well.

Mr. SMITH. Last spring when the emergency funds were cut off we had at that time \$500,000, and the question came up as to how we should allot that money to the States. We had two ways open to us. We could have put it all uniformly into that group of 2,000 co-

operatively employed agents out in the States. That would have given each one of them something like \$250.

That would have made a great deal of clerical work here in the Department of Agriculture. The department thought that it was best that we distribute that money in a little larger amounts and on a different plan. As a result we are contributing \$1,500 uniformly to the leaders of the county-agent work, the boys' and girls' club work, and the home demonstration work in all of the Northern and Western States, with possibly one or two exceptions.

In addition there may be assistants, as in Minnesota, where they have 83 county agents, one leader is not sufficient to keep in touch with 83 agents and give them adequate help in their work. The State leader must have assistants, and there we contribute \$1,200 toward the employment of that assistant, and the colleges pay the remainder and his traveling expenses.

You will remember that some money was given us last spring to use as a kind of balancing fund, due to the fact that the Smith-Lever allotment on the basis of rural population was not considered quite fair to the Eastern States and the Western States; and so we are contributing directly to the employment of county agents at the rate of \$600 per agent in about 300 counties.

Mr. McLAUGHLIN of Michigan. That is in addition to their funds?

Mr. SMITH. Yes; that is our fund out of this \$751,000; and those agents to whom we pay \$600 each are located in the eastern part of the country and in the western part of the country, in that territory there—all those States [indicating on chart], and in this group of States right here [indicating on map], and including New Jersey and Delaware. There is not enough money to cooperate at the rate of \$600 a county in all the counties in all States, but only in a part of them; so that, all told, both east and west, we have used around \$200,000 for agents in counties, favoring the West and the East in that way.

Mr. McLAUGHLIN of Michigan. That, you thought, was proper or necessary in view of the fact that the rural population was small in proportion to the total population?

Mr. SMITH. That was our understanding, that the appropriation was made primarily for that purpose, and we tried to handle it in that manner.

Having gone over this in a general way so that you see the distribution, I can give you now some of the details [referring to another chart, which is inserted at this point]:

Office of extension work North and West—allotments, 1919-20.

Supervision:	
Salary and expenses, chief and assistant chief.....	\$10, 000
Emergency clerical help.....	13, 000
Regular clerical, labor, and messenger service.....	14, 120
Freight.....	\$4, 000
Telegraph.....	2, 500
Telephone.....	500
Express.....	1, 500
Mechanical shops.....	2, 500
Supplies, etc.....	6, 580
	<hr/>
	17, 580
Reserve.....	2, 000
	<hr/>
	57, 300

Mr. SMITH (continuing). Taking the first item we had on the other chart, the supervision, with an allotment of \$57,300, this is the way that is distributed: There are the salaries and expenses of the chief and assistant chief, \$10,600. We have traveling expenses incurred, for instance, to the States, where we take at least a week in going over in detail all the expenditures of the college on Smith-Lever money, looking over all the vouchers—

The CHAIRMAN. Where does this \$57,300 come in?

Mr. SMITH. It is a part of the \$176,455 shown on the first chart, but explained more fully. It includes an item of \$13,000 for emergency clerical help. Many of the accounts were not in on June 1, and we did not know how much that was going to cost. Some of those accounts are five and six months in getting in. So we had to set aside that amount for emergency clerical force; that is, help to straighten up the work that was not completed at the end of the fiscal year. That will not appear in this year's item at all. It will be reduced by that much. We will have that much more money going into the field work.

Here [indicating on chart] is the regular clerical force, labor and messenger force, \$14,120. Then there is freight, telegraph, telephone, and so forth. We have a reserve there of \$2,000 for emergencies. That shows you how we spent our \$57,300.

Mr. McLAUGHLIN of Michigan. Why do you have to have mechanical shops?

Mr. SMITH. For putting in electrical wires, for instance. Many things have to be paid out of that.

Mr. HARRISON. That is not a mechanical shop, Mr. McLaughlin. That means that that amount was paid to the mechanical shops of the department for the work done in it.

Mr. SMITH. No; we do not maintain the shop ourselves.

Mr. McLAUGHLIN of Michigan. What mechanical work does this extension work require?

Mr. SMITH. We have our offices here, and oftentimes we have to have lighting fixtures and water, and shelves have to be put up, and things of that sort.

Mr. HARRISON. That is here in the offices in Washington. That has reference to the ordinary upkeep of the offices here.

Dr. TRUE. The department maintains mechanical shops to do the general work that has to be done around the department in the way of repairs, electrical work, and so on. We pay our share of that.

Mr. McLAUGHLIN of Michigan. I notice that in other bureaus money is asked for similar work. For instance, in the Weather Bureau, they had either five or seven firemen over there; I do not remember which.

Mr. HARRISON. In the case of the Weather Bureau a shop is maintained specially because of the distance of that bureau from our mechanical plants.

Mr. McLAUGHLIN of Michigan. They had seven firemen over there shoveling a ton and a half of coal a day.

Mr. HARRISON. Those figures have been corrected in the record; that statement has been clarified in the record, as you will find if you will examine the corrected testimony.

Mr. McLAUGHLIN of Michigan. I have not seen the testimony.

Mr. SMITH. A part of this clerical force is transferred to the statutory roll in the present estimates.

The CHAIRMAN. The overhead charge is \$176,455?

Mr. SMITH. That is for the expenses of the force that has headquarters here at Washington, as has been explained to you.

Dr. TRUE. But, Mr. Chairman, that includes all the people, whether they do work in the field or not.

The CHAIRMAN. That includes the \$57,000; and these specialists you send out in the field?

Dr. TRUE. Yes; but the \$57,000 includes a considerable number of persons who are now transferred to the statutory roll.

The CHAIRMAN. The \$57,000?

Dr. TRUE. Yes. This coming year they will be on the statutory roll.

The CHAIRMAN. The specialists are included in the \$57,000?

Dr. TRUE. No, sir; not the specialists.

The CHAIRMAN. They should be charged to expenses—overhead charges?

Dr. TRUE. Yes.

Mr. SMITH. Part of this regular clerical work here will be on the statutory roll next year?

Dr. TRUE. All of it will be.

Mr. SMITH. I have explained the use of the \$57,300 in detail. I will now explain this field staff in detail, if you care to have it. Take the county agents' work, then, or the staff which has headquarters at Washington. We have a leader of that and five assistants, with their salaries and expenses, amounting to \$27,800, and the clerical assistance, amounting to \$9,200.

The CHAIRMAN. Here in Washington?

Mr. SMITH. Yes.

The CHAIRMAN. That is overhead, too?

Mr. SMITH. These clerical people aid in tabulating the results from the field. The leader and his five assistants work mostly in the field. In the home demonstration work there is the leader and her four assistants and the clerical assistants, making a total there [indicating on chart] of \$30,215. In the boys' and girls' club work, a leader and four assistants, \$29,180. In the farm management, one leader and one assistant, \$8,500. Then under subject-matter specialists, we have a leader and two assistants, \$9,760, and their traveling expenses, as well as the traveling expenses of specialists, who represent jointly the different bureaus and States Relations Service.

The CHAIRMAN. How much is that?

Mr. SMITH. For travel, \$4,500.

The CHAIRMAN. The total of the column?

Mr. SMITH. The total is \$119,155 for the field service. Now, take these clerical assistants that you see here this year. You recall that \$36,000 is transferred this year to the statutory roll, and our total lump-sum fund is reduced by that amount, so that that will lower this year's lump sum by that amount.

The CHAIRMAN. Is that added to or deducted from the overhead charges?

Mr. SMITH. \$119,000 is to be added for the field service.

The CHAIRMAN. What is the aggregate amount?

Mr. SMITH. The total is \$57,300 for what may be called supervision in Washington, plus \$119,155 for a staff that has headquarters here in Washington and works in the field. That makes a total of \$176,455. The remainder of it, something over \$574,000, is allotted to the States.

The CHAIRMAN. Is that to be charged to the overhead charges?

Mr. SMITH. About \$32,000 is chargeable against this item here [indicating on chart]. I do not know what the number is there. I have not that with me; but I know that our statutory roll is about \$32,000.

The CHAIRMAN. Referring to pages 212 and 213, the total of the statutory roll is \$263,260. How much of that \$263,000 is overhead expense?

Dr. TRUE. Those are all employed in Washington.

The CHAIRMAN. Then it is overhead charge, is it not?

Mr. SMITH. It includes all the States Relations Service roll, of which about \$32,000 is for the northern extension office.

Mr. McLAUGHLIN of Michigan. Where you have your boys' and girls' club work, do you have, in a number of the counties, men who are separate from the county agents?

Mr. SMITH. Yes.

Mr. McLAUGHLIN of Michigan. Who are assisting in organizing boys' and girls' clubs? Do you know how many of those you have, and in how many counties?

Mr. SMITH. Yes.

Mr. McLAUGHLIN of Michigan. I mean in the counties where you have boys' and girls' clubs, in addition to the county agents.

Mr. SMITH. Yes; we have right here 156 county club leaders on full time; that is, they are giving the full year to that work. In all, we have 394 cooperatively employed club agents, and some of those are in counties but not giving the full year to it. They may be employed merely for the summer months.

Mr. McLAUGHLIN of Michigan. Do you not think that the work of organizing boys' and girls' clubs should be turned over to the county agents?

Mr. SMITH. I wanted to complete my statement of this morning on that matter, Mr. McLaughlin. The county agent can organize clubs, and does organize them when he is the only officer in the county. We encourage him to organize those clubs, but, as you know, his work becomes very burdensome in a little while. He deals with a lot of people, and he covers 40 or more different subjects. His time is taken up: The people in the North, particularly, seem to be desirous of having assistants to handle the clubs—men who are specially trained in handling children, who can adapt the county program of agriculture to the capacities of children, so that those children will become efficient agricultural and home demonstrators.

Mr. McLAUGHLIN of Michigan. It takes a lot of money?

Mr. SMITH. It takes a lot of money, but it is worth while. I think, if you put that up to the farmers in the North you will find that they want the country club agent and are willing to pay for him. Of our money, we are putting into that work in the counties, I think, not over \$15,000.

Mr. McLAUGHLIN of Michigan. Outside of the money that the States put into it from the Lever fund?

Mr. SMITH. Yes; outside of that. The States themselves are putting in something like \$350,000, and the counties themselves, with the people, are contributing direct over \$250,000. There is, I think, no work that is more popular with the people, and particularly with bankers and business men, than the boys' and girls' club work, and they contribute very freely to that work; and our experience, so far as it goes in the Northern and Western States, is that when the State puts in a county club leader who gives his whole time to that work, the results are so much more satisfactory that the county club agent idea extends over the State just as rapidly as conditions seem to warrant and funds are available for it.

In all cases it is up to the people themselves to say whether they want that or whether they do not want it; whether the fathers and mothers want their boys and girls to have this special training and are willing to pay for it. There is no special urge for it on the part of the department or on the part of the colleges. Of course, you know they are a very efficient factor in actual demonstration work. I need not go into that.

Now, I want to show you one other chart.

Office of extension work, north and west, fund for county-agent work, 1918-19 and 1919-20.

Appropriations.	1918-19	1919-20
United States Department of Agriculture, regular	\$320,183	\$345,800
United States Department of Agriculture, emergency	1,893,000	.....
Federal Smith-Lever	397,225	1,001,828
State Smith-Lever	547,513	1,251,342
State appropriations	202,599	89,608
College appropriations	12,089	.....
County appropriations	1,389,431	1,640,305
All other	610,798	477,257
Total	5,372,840	4,806,142

Mr. SMITH (continuing). Here is the money that was put into county agents for 1918-19 and for 1919-20 [indicating another chart]. I think you will see where your extra \$1,500,000 went last year. We put in \$320,183 last year from this \$751,000 to the department, and we are putting in \$345,800 this year; and that emergency item of \$1,893,000 [indicating] is, of course, cut out this year; that is, we had \$1,893,000 emergency money last year which we will not have this year.

The Federal Smith-Lever fund has increased from \$397,225 in 1918-19 to \$1,001,828 this year. The State Smith-Lever fund has increased from \$547,513 in 1918-19 to \$1,251,342 for 1919-20. The State appropriations have decreased from \$202,599 last year to \$89,608 this year.

Dr. TRUE. That is extra State appropriations.

Mr. SMITH. That is extras; because a portion of last years' State amount has probably gone in to meeting offset this year.

The college appropriations have decreased. County appropriations have increased from \$1,389,431 to \$1,640,305.

Dr. TRUE. That is also the extra money which is not offset

Mr. SMITH. Some of the county money is in the Smith-Lever fund, above. That \$1,640,305 shows the extra money which the counties have put up for the work.

Last year, while there was spent \$5,372,840 in county-agent work, this year there has been allotted \$4,806,142, a decrease of about 9 per cent in the funds for county agent work. You ask whether there is any need for this additional \$500,000 that matures under the Smith-Lever Act. In the North we have some 1,100 counties organized for county-agent work out of 1,500 counties. Our thought is that the other counties should be organized, from the fact that many of them are ready to put up their share of the money.

The women's work should be increased, and we think the club work should also be increased.

The CHAIRMAN. You referred to specialists of the Dairy Division, did you not?

Mr. SMITH. You have brought up the word "specialist." I thought you might be interested in knowing the different kinds of work in which specialists are engaged.

The CHAIRMAN. We know what they are doing, but we would be interested in knowing how many are being sent out from all the bureaus.

Mr. SMITH. Yes; I have that.

The CHAIRMAN. Have you any idea how many are being sent out by the Dairy Division, aside from those who cooperate with you?

Mr. SMITH. Yes; in these Northern and Western States there are 16, including those in dairying, who have headquarters in Washington.

The CHAIRMAN. Do you mean 16 specialists for the whole department?

Mr. SMITH. No; 16 of these specialists, with headquarters in Washington, who are working in 33 Northern and Western States. I do not know how many are in the Southern States, but I do not think there are many who have headquarters in Washington.

The CHAIRMAN. They are included in the 776, which Dr. True stated was the total number of specialists?

Mr. SMITH. No; these 16 are in addition to the 776.

Mr. ANDERSON. Maybe I am thick about it, but I would like to understand the proposition. Do I understand that those 16 specialists are paid out of appropriations carried for the different bureaus?

Mr. SMITH. Yes.

Mr. ANDERSON. And they have no relation to the Smith-Lever funds or to the funds of the States Relations Service?

Mr. SMITH. No; excepting as the bureaus enter into an agreement with the States Relations Service.

Mr. ANDERSON. I had an impression that in almost every item for almost all these bureaus some of the money is supposed to be spent for specialists who go out to converse with the county agents, and I gathered from the number of times that we were told that that was what the money was to be spent for that there were a good many more than 16 of them.

Mr. SMITH. Let me clarify that, Mr. Anderson.

Mr. ANDERSON. I would like to get straight on it.

Mr. SMITH. There are 16 of them with headquarters in Washington, working in the 33 Northern and Western States. The bu-

reans themselves have, in addition to that, approximately 100 located out in the States, and those 100 are included in the 776.

The CHAIRMAN. The 100 are?

Mr. SMITH. Yes; they are included in the 776. These men are employed, with headquarters in Washington, because the bureaus here need to keep in touch with their field work in which their money is involved, but they have no entree to the Smith-Lever work except through the States Relations Service.

Mr. ANDERSON. Does this figure, 776, represent specialists that are paid out of the Smith-Lever funds by the colleges?

Mr. SMITH. They are paid out of all extension funds of the colleges and the department.

Dr. TRUE. Here is the proposition: The Dairy Division wants to carry on certain extension work in the States. They enter into agreements with the colleges under which the Dairy Division is to pay a certain part of the expense. That involves, usually a part or the whole of the salary of specialists. Those specialists go out into the States and make their headquarters at the agricultural college, becoming part of the State extension force in that way; they go out into the States to help the county agents and to do extension work, just like extension specialists who may be employed wholly by the colleges.

Mr. ANDERSON. Do they continue to be paid out of the appropriations for the bureaus?

Dr. TRUE. Partly. All of this is a cooperative enterprise. That is one of the difficulties we have when we come to explain it, because it has so many contacts and so much uniting of forces and of funds that any general statement that we may make has to be qualified when you get down to the details.

The CHAIRMAN. This dairy specialist tells about the bull clubs and the work being done throughout the country. Do the bureau specialists come under your supervision and direction, and are they included in the 776?

Mr. SMITH. They are included in the 776.

The CHAIRMAN. Do all employees sent out by the Dairy Division work in that way, and is what is true of that division also true of the other divisions of the department?

Mr. SMITH. Let me show you how Mr. Rawl may handle this matter. Let us say that Mr. Rawl has \$30,000 for a certain piece of work. If he pays all the salaries and the expenses of all the men engaged, he can employ only about 10 people in about 10 States. If he feels that the work needs to be carried on in more than 10 States, he may go to the colleges and say, for example, "Ought we not to increase the cow-testing or bull association work of this State? I have \$1,500 to put into the employment of a man if you can put in the remainder of his salary and pay his traveling expenses. We will locate that man here at the institution, under your general administrative direction, and working in accordance with the plans we jointly have in view."

The CHAIRMAN. So that Mr. Rawl is interested not only in 10 agents in 10 States, but in 15 agents in 15 States?

Mr. SMITH. Yes.

The CHAIRMAN. So far, he only deals with the colleges. Where do you come in?

Mr. SMITH. We come in in this way: Mr. Rawl has a specialist out there interested in extending dairy work. We have the organization through which he is going to work. We have the county agent, and the home-demonstration agent, and the club agent, and if he is going to accomplish much in dairying in that State he has got to work in cooperation with and through that group of agents. Say that Mr. Rawl puts one dairy agent in a State and there are 80 county agents to deal with; that specialist will deal with the county agents through the extension director, who represents the States Relations Service in each State.

The CHAIRMAN. Whom do you mean by the State director?

Mr. SMITH. The man at the college who is in charge of all the extension work?

The CHAIRMAN. Paid out of the extension funds?

Mr. SMITH. And paid out of any funds that the college may have, from any source. None of the money that is appropriated directly to the department goes into the director's salary.

The CHAIRMAN. Is he under your direction?

Mr. SMITH. He is under our direction only to the extent that is agreed upon in writing; and the Secretary has an understanding with all the colleges except two that they will appoint no director unless he is acceptable to the Department of Agriculture. On that consideration the Secretary agrees to do all the extension work that he has to do with these direct appropriations that you give him in cooperation with the college, providing the college appoints a director that can satisfactorily represent the department in the administration of that work in the State.

The CHAIRMAN. You do not contribute anything toward his support?

Mr. SMITH. Not a thing.

The CHAIRMAN. Except that he is supposed to know your director?

Mr. SMITH. No; he is in charge of all the extension work done in the State, whether it is done under the funds of the Department of Agriculture or of the State.

The CHAIRMAN. Where do you come in?

Dr. TRUE. He is the joint representative of the department and the college.

The CHAIRMAN. Where do you show that your bureau is represented, any more than any other bureau, if he is there representing the department? Mr. Rawl's man comes in under your jurisdiction?

Dr. TRUE. This is the situation, Mr. Chairman: By agreement between the college and the Secretary of Agriculture, the extension director is the joint representative of the department and the college for the administration of all the extension work in the State, so that when a department man, whether from the Bureau of Animal Industry or any other bureau, comes out and is located in the State at the college, he comes under the administrative direction of the extension director; and those extension directors report to the States Relations Service.

The CHAIRMAN. Does Mr. Rawl's man report to you?

Mr. SMITH. Yes; because Smith-Lever funds which are administered by the State Relations Service are involved.

The CHAIRMAN. Not to Mr. Rawl?

Mr. SMITH. He reports to Mr. Rawl also, because Mr. Rawl has \$1,500 of money appropriated for his work by Congress involved.

The CHAIRMAN. He reports to both of you?

Mr. SMITH. Yes.

Mr. McLAUGHLIN of Michigan. I gathered from what Mr. Rawl said about the man who was sent out from his bureau, speaking of this particular work of organizing bull clubs, that his man had nothing to do with the county agent. The work is work that the county agent does not do; he does not know enough, so that a man has to be sent from the dairy division. That was stated very bluntly—that they had nothing to do with county agents because county agents were not competent. I regretted very much to hear that, because I have been very much interested in county-agent work.

Mr. SMITH. I think there is some mistake in there, somewhere, because the dairymen at the college, these specialists that Mr. Rawl may cooperatively employ with the college, have general charge of that work and inspire the county agents to aid in the work of such associations in the county. You remember that in the cow-testing association work, when they finally get a group of 25 or 26 farmers to cooperate, the group hires a man of their own to do various things in connection with that work, like keeping records, testing the milk, etc. The county agents are helping very materially in that work. In fact, none of the specialists these days are thinking of organizing their work except as they do it in cooperation with the county agents. The county agents are there on the ground, they are there the year around, and the specialists are learning that, if they want to get effective work done, they should deal, and they are dealing, through the agents. That is the philosophy of good extension organization.

The CHAIRMAN. The people that are sent out, for instance, by the Bureau of Plant Industry on the black rust work, do they come under your direction?

Mr. SMITH. There are practically none that are doing extension work in the Bureau of Plant Industry.

The CHAIRMAN. During the emergency, did they not have a large extension staff engaged in investigating the rust of wheat?

Mr. SMITH. Yes.

The CHAIRMAN. Was that along the line of your educational work?

Mr. SMITH. Yes; extension work.

The CHAIRMAN. Of course, all their work is done in the States; and that they do not do extension work except in accordance with the plan that is worked out with the States Relations Service. Are they included in the 776?

Mr. SMITH. They are, so far as there are any available. There are none available now. There are none doing that work now.

Dr. TRUE. I might say that there are at present one or two plant pathology specialists from the Bureau of Plant Industry doing such work in the Southern States under just such an arrangement as has been described for these other specialists.

The CHAIRMAN. What cooperation is there between the bureaus, and how many specialists are being sent out?

Mr. SMITH. At this time, as I say, there are only 16 working in the Northern and Western States with headquarters here.

Mr. McLAUGHLIN of Michigan. The Lever fund for next year will be \$3,580,000. For the year that is current it is \$3,080,000. Does the law provide that the entire amount of that money shall be distributed among the States if it is met by a similar amount from the States, or does the law provide that some portion of it may be retained by the Secretary of Agriculture for emergencies? Must it all be distributed to the States?

Mr. SMITH. It must all be distributed to the States.

Mr. McLAUGHLIN of Michigan. There is nothing, then, that remains in the hands of the department?

Mr. SMITH. Not a cent.

Mr. McLAUGHLIN of Michigan. I presume the States have different ways; I presume that altogether there are many different ways of meeting the requirements of the Lever law about duplicating the money appropriated by the Government?

Mr. SMITH. Yes.

Mr. McLAUGHLIN of Michigan. In some cases the contribution is made directly by appropriation by the legislature; sometimes the college devotes a part of its revenues; sometimes it is raised by local subscriptions and contributions by associations, and so on?

Mr. SMITH. Yes.

Mr. McLAUGHLIN of Michigan. There are many different ways, are there?

Mr. SMITH. Yes.

Mr. McLAUGHLIN of Michigan. Have all the States in the Union come under that law?

Mr. SMITH. Every State has accepted the provisions of the law.

Mr. McLAUGHLIN of Michigan. And is every State receiving the full amount of money under that law?

Mr. SMITH. I think there are some exceptions.

Mr. MERRITT. All of them are receiving the full amount under the Smith-Lever Act except one State, which has not been able to meet the supplementary fund; that is Pennsylvania.

Mr. McLAUGHLIN of Michigan. I am not speaking of the supplementary appropriation. Is each State meeting the Lever law money in full and receiving the full amount of its apportionment?

Mr. SMITH. The States are contributing to meet this money from the State funds.

Mr. McLAUGHLIN of Michigan. Each State is contributing enough to get that money, is it?

Mr. SMITH. Yes. You may want to consider the matter of extension specialists a little further, because it has been brought up here a number of times. I think we ought to clear that up if we can. I have indicated on another chart the different lines of work that the States are carrying on and the number of specialists which would be required to make a complete system.

Cooperative agricultural extension work.—Lines of work and specialists needed for complete system of extension work in agriculture and home economics for the whole United States, based on the assumption of 3,000 agricultural counties and a county agent in each county.

	Approximate number of specialists needed.
Field crops, including soils and fertilizers (1 for each 30 counties)-----	100
Horticulture (1 for each 30 counties)-----	100
Animal husbandry (1 for each 30 counties)-----	100
Dairying (1 for each 30 counties)-----	100
Poultry (1 for each 30 counties)-----	100
Forestry (1 for each 60 counties)-----	50
Vegetable pathology (1 for each 30 counties)-----	100
Veterinary science (1 for each 30 counties)-----	100
Biology (1 for each 30 counties)-----	100
Food nutrition (1 for each 30 counties)-----	100
Clothing (1 for each 30 counties)-----	100
Home health (1 for each 30 counties)-----	100
Farm management (1 for each 30 counties)-----	100
Marketing (1 for each 20 counties)-----	150
Rural engineering (1 for each 30 counties)-----	100
Total-----	1,500

Estimate 1,500 specialists at an average cost of \$4,000 each, salary and expenses, \$6,000,000.

Mr. SMITH (continuing). It is clear that the horticulturists, as the work is now developing, may not know much about—

The CHAIRMAN. Tell us about the field-crop specialist. What about him?

Mr. SMITH. The horticulturist may not know very much about poultry or about clothing.

The CHAIRMAN. How much does that man know about crops?

Mr. SMITH. All right; let us take his work and see what he will do. The county agents are pretty well up on field crops, and there are very few of those specialists employed. Take a man in agronomy or field crops; his work is to keep up with the progress in agronomy the country over or the world over, and to furnish the county agents with that information, whatever it may be.

The CHAIRMAN. Along what line would the information be?

Mr. SMITH. I might give an illustration covering a phase of corn growing. We have assumed and have been teaching that we knew a good deal about corn, and have been showing farmers how to test seed corn and how to select seed corn that will germinate well when planted. We thought if it germinated well that that was all there was to it. Talking with a Bureau of Plant Industry representative the other day, I was told that there is a rot in corn, a soft rot, that may occur and cause great loss of the mature corn. It is in the seed to begin with, and those seed may germinate perfectly, like other seed—not quite like other seed, but, so far as the ordinary person would notice, they would not see any difference but would plant that corn, thinking it was all right, whereas when it grew up the matured ear would be diseased and would not be first-class corn.

Now, the agronomist or field-crop specialist is able to show us how to detect that disease even in the sprouted seed, and so save the farmer from the loss resulting from planting such seed. I do not believe there are 20 county agents in the United States to-day who know that secret. Some one has got to teach them that thing, to

show them that thing, and the county agents are just like the farmers or anybody else; they learn best and quickest by seeing things done—by being shown. So we will get a Bureau of Plant Industry specialist to go to the States and show the forces there, if they are not already aware of it, just how to tell that thing in the germinating corn; and the specialist there in the State will take the information on out to the county agents, and the county agents will take it on out to the farmers and to the school-teachers and all those people who are engaged in testing seed corn.

Mr. ANDERSON. The thing that always rather strikes me about this proposition is that we always have to send a man out to converse with each one of these county agents separately.

Mr. SMITH. All right.

Mr. ANDERSON. In all the business institutions that I am familiar with—they are not very numerous and not very important—if they want to do anything of that sort they bring the men in once or twice a year and tell them all the developments of the business for the preceding period, instead of trying to send somebody out and hold a conversation with each one of them every week or two.

Mr. SMITH. Yes. The agents engaged in the work in the Northern and Western States have just such conferences; they have their meetings at the colleges. It is expensive to bring them all together very often. In this work, which is a relatively new enterprise, you will find when you study it that after you have had your men assembled at the conference and send them out again some of them will have been impressed with what you have said and some of them will not; and if you follow them up you will find that some of them will be 100 per cent efficient in carrying out the new thing and some of them will be only 50 per cent efficient. By following them up in the field the specialist can see how efficiently his work is getting across, and, if the county agent is not getting that information to the farmer, the specialist has an opportunity to help him straighten the thing up.

Then, in this connection, you must remember that our county-agent force changes about every year and a half; practically new people come on the job, and they need again to be taught how to organize work, and have again to be brought into contact with specialists who have knowledge along the particular lines of work. Most men on graduation from an agricultural college are not very strong in any particular line, and when as county agent they go out in the county they can keep up in some lines of work, but not in all of them; and so some specialists, we feel, are absolutely essential to success if you are going to have the best development of the entire system. How many of these specialists there shall be is another question.

Mr. YOUNG. You made one statement there that is alarming to me. That is in regard to the frequency of the changing of county agents.

Mr. SMITH. Yes, sir; the average is about a year and a half. That is about the life of the county agents in the North.

Mr. YOUNG. Why it that?

Mr. SMITH. There are so many opportunities open to them in various lines of business, and many of them also have gone out of the work during the war. That has been the history of the work up to this time. In one Western State last year and the year before there was a 90 per cent change each year.

Mr. YOUNG. Is it not very unfortunate for the farmers of the country as a whole that you have to educate men in this line of work so often and have them stay so short a time?

Mr. SMITH. It is exceedingly unfortunate.

Mr. McLAUGHLIN of Michigan. You do not pay the men enough.

Mr. SMITH. We do not pay them enough.

Mr. McLAUGHLIN of Michigan. Would it not be better to get good men and pay them more than to try to extend the work so much?

Mr. SMITH. Yes; it would be advisable to get good men and to keep them; but there, again, you enter into the whole system of salaries in the colleges and in the Federal Department of Agriculture. In the college the extension division is a part of the college, and if they are going to maintain their college they can not pay such attractive salaries in the field that all college professors will leave and go out into the extension work, so that they have to maintain a kind of level. They should raise the salaries in the colleges.

Mr. McLAUGHLIN of Michigan. The college of a State gets its proportion of the Lever money?

Mr. SMITH. Yes.

Mr. McLAUGHLIN of Michigan. The State has to match that money?

Mr. SMITH. Yes.

Mr. McLAUGHLIN of Michigan. They can use that money in any way that they please?

Mr. SMITH. Yes.

Mr. McLAUGHLIN of Michigan. They can pay such salaries as they please?

Mr. SMITH. Yes.

Mr. McLAUGHLIN of Michigan. Do you mean to say that, if they have high-class salaries—put the salaries on a high grade for the field men—it will interfere with the morale, as you might say, of the men employed in the college?

Mr. SMITH. It does; yes, sir.

Mr. McLAUGHLIN of Michigan. The men in the college never see these field men?

Mr. SMITH. They hear of their salaries, however; and they are attached to the same institutions. Some of the colleges give them titles similar to those of the men in the college.

Mr. McLAUGHLIN of Michigan. What is that?

Mr. SMITH. Some of the colleges give them titles comparable to those in the institution.

Mr. McLAUGHLIN of Michigan. They give the field men titles?

Mr. SMITH. Yes.

Mr. McLAUGHLIN of Michigan. What kind of titles?

Mr. SMITH. Assistant professor, or something of that kind. They class them as a regular part of the university staff.

Mr. McLAUGHLIN of Michigan. I have noticed these frequent changes of county agents, and I have thought it to be very unfortunate.

Mr. SMITH. It is unfortunate.

Mr. McLAUGHLIN of Michigan. And I have noticed what I should think was the difficulty of getting high-class county agents—the small salaries that they were paid. It seems to me that it would be

advisable, if you could, to pay money enough to get the right kind of a man and try to hold him.

Mr. SMITH. You are exactly right.

Mr. McLAUGHLIN of Michigan. And it occurs to me that it would be better to spend your money in getting a few high-class men rather than to spend it in employing a lot of men of indifferent ability.

Mr. SMITH. Yes, sir.

Mr. McLAUGHLIN of Michigan. In many places the work done by the county agents does not very favorably impress the people.

Mr. SMITH. Yes, sir; we agree with all of that. There is, however, that practical difficulty.

Mr. McLAUGHLIN of Michigan. In spite of the fact that you agree with that, you keep on extending the work instead of getting better men in fewer places.

Mr. SMITH. We do not have the whole say in the matter.

Mr. McLAUGHLIN of Michigan. That is arranged with the college, is it?

Mr. SMITH. Yes. At most it is a partnership arrangement, where the county agent is employed, and we do not consider that \$600 is—

Mr. McLAUGHLIN of Michigan. You do not contribute \$600. That \$600 comes out of the Lever money that is paid by the Government to the State.

Mr. SMITH. No.

Mr. McLAUGHLIN of Michigan. Do you pay an additional \$600?

Mr. SMITH. I told you that in 300 counties in the East and the West we are contributing \$600 for about 300 county agents.

Mr. McLAUGHLIN of Michigan. That is paid out of this—

Mr. SMITH. That is out of this appropriation for the extension work of the Office of Extension in the North and West. In that case we might have something to say; but the direct appropriation to the department is a comparatively small amount. Usually \$600 would be about one-fourth of the salary.

Mr. YOUNG. Let me ask you a little more about this changing of county agents. Was that accentuated very much by war conditions?

Mr. SMITH. Yes, sir.

Mr. YOUNG. What service did they render before the war?

Mr. SMITH. It would not run beyond two years.

Mr. YOUNG. That is the average?

Mr. SMITH. We have some men who have stayed beyond that; but that is the average. Then, of course, these high prices have come along, and the opportunities for those men in business have been very great.

Mr. YOUNG. I see what you are up against. It runs the same in every line. Take it in my country; I do not know how it is in the rest of the United States, but our school-teachers are possibly the worst paid people we have. Take it in a country town of 3,000 or 4,000 people; bank cashiers get \$100 or \$125; clerks in dry goods stores \$75, and so on; and we are having the same trouble in every line. People can get out of those places and make more at day labor than by school-teaching or working in a bank or in any store or in any clerical position, so that I know you are up against the same thing that we are every day.

Mr. SMITH. Yes. That the colleges are trying to meet it is shown by the fact that for the years 1914 to 1916 the average salary of the entering county agent was about \$1,800. The average entrance salary of the county agent in the North and West is now about \$2,300. We are giving \$500 more to the agent who enters on that work now than we did before the war.

Mr. YOUNG. You have the country divided into sections, the southern, western, and northern. Does the same scale of salaries prevail generally—the whole country over?

Mr. SMITH. It is somewhat higher in the North than in the other sections.

Dr. TRUE. It is considerably higher, on the average, in the Northern than in the Southern States.

Mr. YOUNG. It is the same line of work?

Mr. SMITH. Yes; it is the same line of work, but for some reason the scale of salaries is not as high as in the North. It is increasing in the Southern States. We are paying more now than we used pay, but the differences make the average showing lower for the Southern States.

STATEMENT OF DR. A. C. TRUE, DIRECTOR OF THE STATES RELATIONS SERVICE, DEPARTMENT OF AGRICULTURE—Continued.

Mr. McLAUGHLIN of Michigan. Breaking in right there I want to ask a question that occurs to me.

Since the beginning of this extension work, particularly since the passage of the Smith-Lever law, I understand you have located in the colleges some permanent scientists to carry on studies by analysis, and so on, of agricultural problems.

Mr. SMITH. I do not know of any such thing.

Mr. McLAUGHLIN of Michigan. I gathered that from something Dr. True said yesterday.

Dr. TRUE. None of these extension agents do any experimenting.

Mr. McLAUGHLIN of Michigan. Not the extension agents; but have you not located men, or are you not appropriating any part of the money to the payment of men who are located, at the colleges for the purpose of work?

Dr. TRUE. Certainly; extension men from the bureaus may be located at a college and be paid from department funds, in part, at least.

Mr. McLAUGHLIN of Michigan. You say "may be." Have you any so employed?

Dr. TRUE. Oh, yes; they are employed. But they are not doing experimental work.

Mr. McLAUGHLIN of Michigan. I do not know that I give it the right name. It is extension work, is it, such as you think is proper to be paid for out of Lever-law money?

Dr. TRUE. Yes, sir.

Mr. McLAUGHLIN of Michigan. How much are you spending in that way out of Lever money?

Mr. SMITH. Only men like Dr. Mumford—

Mr. McLAUGHLIN of Michigan. Oh, I did not get that idea at all; if it is only men like State agents.

Mr. SMITH. That is the only kind of men employed on extension funds.

Mr. McLAUGHLIN of Michigan. Are not some scientific men—some scholarly men, I mean—located more or less permanently at the colleges carrying on work there?

Dr. TRUE. I could not tell you how much of the Smith-Lever money is spent for extension agents with headquarters at the colleges. I have not that at hand and I could not tell you without looking it up.

Mr. McLAUGHLIN of Michigan. Outside of the Smith-Lever money, out of these special appropriations, are you paying the salaries of any men located more or less permanently at the colleges to do that kind of work?

Dr. TRUE. Yes.

Mr. McLAUGHLIN of Michigan. I do not mean men like the State agents, like Mumford in Michigan, are doing.

Dr. TRUE. Only in the case of farm-management demonstrations, which come under Mr. Smith's office. You will remember that from the beginning the northern extension office has used a part of its direct appropriation for farm-management demonstration.

Mr. McLAUGHLIN of Michigan. Demonstrations are largely in the field, naturally, are they not?

Dr. TRUE. Yes; but these men work out from the college. They have headquarters at the college and work out in the State.

Mr. McLAUGHLIN of Michigan. I gathered from what you said—I may have gotten a wrong impression—that in the aggregate there are a large number of men, involving the expenditure of a large amount of money for men, as I got the idea, permanently located at the college; not to work outside, but on some problems, and to conduct studies in agriculture and so on, as scientific men carry on their work.

Mr. HARRISON. When Dr. True was discussing yesterday the Hatch and Adams appropriations, he referred to the number of employees engaged in scientific and technical work at the various State experimental stations. He indicated, I believe, that approximately \$6,000,000 was available for this purpose, \$1,440,000 of which comes from the Federal Government through the Hatch Act and the Adams Act.

Mr. McLAUGHLIN of Michigan. I had an idea that it was something more than that. Under the Hatch and Adams Acts you put in the amount of money to a college for the purposes of that act?

Dr. TRUE. Yes.

Mr. McLAUGHLIN of Michigan. Then do you hire other men to go to that college and carry on that work?

Dr. TRUE. The States Relations Service has no money for that purpose.

Mr. McLAUGHLIN of Michigan. Do you hire any such men?

Dr. TRUE. Do you mean in the different bureaus? There may be money there which can be spent for investigations, and they enter into cooperative arrangements with the State colleges to carry on investigations.

Mr. McLAUGHLIN of Michigan. At the colleges?

Dr. TRUE. And in some cases they locate men at the colleges or State experiment stations to carry on that work.

The CHAIRMAN. Is it not a fact that college men are employed, and that part of the time they are paid by the college and part of the time they are paid out of this extension fund? I so understood you yesterday.

Dr. TRUE. Extensive specialists are located at the college——

The CHAIRMAN. They are college men?

Dr. TRUE. They are college people.

The CHAIRMAN. They belong to the staff of the college and are members of the faculty, are they not?

Dr. TRUE. They are members of the faculty.

Mr. McLAUGHLIN of Michigan. There is so much appropriated under the Hatch Act and so much under the Adams Act that is given to the State.

Dr. TRUE. Yes.

Mr. McLAUGHLIN of Michigan. My motion was that each college spent its own money in its own way, except that it was on the plan approved by the Secretary of Agriculture. Do you send men from the colleges to carry on that same kind of work, and do you pay them?

Dr. TRUE. A bureau may have money to do investigation, and they may enter into a cooperative arrangement with one or more colleges for work along that line. The college uses for that purpose men who are engaged in the experiment station; but this is different from the extension work. In the financial adjustment, part of the salary may be paid from department funds and part from the ordinary station funds. It does not involve any duplication of salaries or expenses. The thing is properly lined up, as I understand it.

Mr. McLAUGHLIN of Michigan. I did not think it was duplication, but I thought the money was given to the college for a particular kind of work, and then I thought you were sending men to the colleges and paying them yourselves for doing the same kind of work or work contemplated under that act.

Dr. TRUE. It may be work contemplated under the act; yes, sir.

Mr. McLAUGHLIN of Michigan. Why do you not let the States do that if the Government gives them that amount of money?

Dr. TRUE. The experiment stations do a great variety of work, and their funds are not sufficient to meet all demands for experimental work. For example, a problem connected with some particular disease of a plant may arise in a certain State. That would be a legitimate work for the experiment station to undertake, but the experiment station may not have funds to put into that work, or may have only a small amount of money, insufficient for the work. It enters into cooperative arrangements with the Bureau of Plant Industry to carry on that work as a joint enterprise; the Bureau of Plant Industry puts in some of the money and the college puts in some; and while that work is going on the investigator may have headquarters at the college or at the experiment station, using the laboratories there and going out into the State to study the disease wherever it exists.

The CHAIRMAN. Are we contributing money for the maintenance of the colleges in an indirect way? You will recall that when the Lever bill was being considered the contention was made that there was a lot of knowledge bottled up here in Washington valuable

out in the country, and that we should find some way of disseminating it.

Dr. TRUE. It never was intended, as I understand it, that the United States Department of Agriculture should withdraw from either research or extension work in the States.

The CHAIRMAN. You do research work in Washington?

Dr. TRUE. Yes; and also in the States.

The CHAIRMAN. In the agricultural colleges and in Washington?

Dr. TRUE. There never has been a time that the department was not carrying on a large amount of research work in the States.

The CHAIRMAN. That work was carried on under the Hatch and the Adams Acts.

Dr. TRUE. No; the Congress has been appropriating to the Department of Agriculture large sums of money for research work to be carried on in the States, in addition to the work that the State experiment stations carry on with the Hatch and Adams funds.

Mr. McLAUGHLIN of Michigan. I think from the very nature of the problems it is necessary to do a lot of research work, and my impression is that Congress approves it and is disposed to be very liberal—

Dr. TRUE. Certainly.

Mr. McLAUGHLIN of Michigan (continuing). With this money for research work?

Dr. TRUE. Yes.

Mr. McLAUGHLIN of Michigan. Because wonderful results have been produced by your men engaged in research work.

The CHAIRMAN. You say you pay part of the time of the men at colleges. If this money was intended to be used to disseminate that knowledge which had been gathered up in the department it should be applied to the purpose for which it was intended.

Dr. TRUE. None of the extension money is used for the gathering of information.

The CHAIRMAN. What is the research work that is being done at the colleges?

Dr. TRUE. None of the research work is paid for out of extension funds.

Mr. LAUGHLIN of Michigan. I thought it was. That was one of my criticisms of the work. I thought that some of this money appropriated, as Mr. Haugen says, to carry out the results of your work into the country, for practical work, was being used for research work.

Dr. TRUE. If there is, I do not know of it; and we are careful in our inspection of the colleges to determine what money is spent for extension work, what money is spent for experimental work, and what money is spent for teaching. We keep those things distinct, and the colleges understand that if they spend any of the extension money for research work they are acting contrary to the law. If they spend any of the experiment station money for teaching or extension work they are violating the law, and they understand that. Wherever we discover any sums that have been diverted in that way, intentionally or unintentionally, we call them to the attention of the college and insist on a readjustment of the matter.

The CHAIRMAN. An employee of the college is paid part time by the college and part time by the department. Much of the time of

such an employee in the college is spent in making out reports and other work than carrying on experiments.

Dr. TRUE. A man may be employed in the college as an experimenter and be paid half of his salary from the Hatch and Adams Acts appropriations, and he may devote half of his time to experimental work.

The CHAIRMAN. For the college, but not for you?

Dr. TRUE. Yes. Under the law, under the Hatch and Adams Acts, it is just as much for us as for the college.

The CHAIRMAN. We do not take that into consideration here. That is from the permanent annual appropriation. The colleges receive that whether we appropriate here or not. It is from the permanent annual appropriation. But here are other appropriations made, as has been stated here, for the specific purpose of disseminating the knowledge gathered by the department; not for gathering information or for study or for experiment, but for disseminating it.

Dr. TRUE. No, sir; that is extension work.

The CHAIRMAN. Simply to carry the knowledge to the people.

Dr. TRUE. That is extension money.

The CHAIRMAN. That is extension.

Dr. TRUE. And it must be used for the extension service.

The CHAIRMAN. Exactly. If it is used for extension, it is not for experiment.

Dr. TRUE. No, sir. But a man may be employed half of his time doing experimenting and half of the time doing extension work, in which case half of his salary is paid from experiment station funds and half from extension funds.

The CHAIRMAN. Then we are to understand that you do not pay him for any of his time spent in experimental work?

Dr. TRUE. Absolutely not.

The CHAIRMAN. That is paid entirely by the college?

Dr. TRUE. Yes, sir.

The CHAIRMAN. Then we understand each other perfectly.

STATEMENT OF MR. CLARENCE B. SMITH, CHIEF OF THE OFFICE OF EXTENSION WORK IN THE NORTHERN AND WESTERN STATES, STATES RELATIONS SERVICE, DEPARTMENT OF AGRICULTURE—Continued.

The CHAIRMAN (continuing). Now Mr. Smith, I would like to ask you some questions. I take it when you select a county agent for the corn belt you secure one who is well up on corn and the products of that particular locality. What is he supposed to know about field crops?

Mr. SMITH. This field crop specialist is supposed to know all there is to know up to that time on field crops and to keep the county agents informed up to the minute on that.

The CHAIRMAN. Is he supposed to know how to select seed corn?

Mr. SMITH. Seed corn, and how to grow the crops, how to prepare the land, how to take care of the land, and everything in connection with the growing and harvesting of the crops.

The CHAIRMAN. In employing a man for corn you would not select some one who had particular knowledge of cotton, but you

would select some one who had a knowledge of corn and of other crops in the corn-growing section?

Mr. SMITH. A man with a knowledge of all the crops grown there—corn, wheat, and barley and the usual field crops that they grow there.

The CHAIRMAN. Can an agent go out into a field and estimate the crops, as to yield for instance—

Mr. SMITH. No.

The CHAIRMAN (continuing). And crop conditions?

Mr. SMITH. No; his judgment is worth the judgment of one man, and crop estimates are made through the judgment of many people the country over.

The CHAIRMAN. What estimate can your agents make?

Mr. SMITH. Just the estimate that any intelligent man could make.

The CHAIRMAN. Could he not do better than the average man?

Mr. SMITH. He might. It would depend on whether he had had experience. He knows whether the crop in his neighborhood is a good crop or not. In this crop-estimating work many of the States are, in their farm bureaus, appointing a committee of farmers, of whom the county agent may be one, who make a report to the State on crop conditions.

The CHAIRMAN. Your county agent drives through the county continually?

Mr. SMITH. Yes.

The CHAIRMAN. He goes over the county two or three times a year, and over much of it once a week or oftener?

Mr. SMITH. Yes.

The CHAIRMAN. Should he not have fair knowledge of the crops?

Mr. SMITH. Yes.

The CHAIRMAN. His judgment should be better than that of the man who has less opportunity to see the crops?

Mr. SMITH. Yes.

The CHAIRMAN. Should be an expert?

Mr. SMITH. He is not giving his whole thought to that thing. He is better than the average man, undoubtedly, because he has a better opportunity to see.

The CHAIRMAN. If he is interested in the welfare of the farmer and the crop owners, he could not help but observe the condition of the crop?

Mr. SMITH. That is true.

The CHAIRMAN. Is it not a fact that he would be an expert on the yields and condition of the crops?

Mr. SMITH. In a considerable sense he would.

Mr. ANDERSON. If he only lasted a year and a half in office, he would not have much opportunity for forming comparative judgments?

Mr. SMITH. That is only the average man; and we hope, now that the war is over and salaries have gone up a little bit, that the period of service may be longer.

The CHAIRMAN. If he stays there a year and a half he should have knowledge of the conditions?

Mr. SMITH. Yes; he should have as good a knowledge as anybody who has to handle 15 to 20 lines of work.

The CHAIRMAN. But he has not 15 lines of work in any one locality.

Mr. SMITH. If you are dealing with the county agent, he covers but one county, and he does not go over the State.

The CHAIRMAN. Practical men would have knowledge of the crop yields. That is one of the first things that would enter the mind of a practical man.

Mr. SMITH. In hiring county agents the matter in most cases is put up to the farmers themselves, who have a voice in selecting him. The farmers have a chance to look him over and question him before he is employed, and his record is before them. They pay the larger part of his salary, so that they are very much interested in having as practical a man as they can get.

Mr. McLAUGHLIN of Michigan. You say the farmers have something to do with the selection of the county agent?

Mr. SMITH. Yes. Each county forms a bureau composed of farmers, and they practically select the county agent. Names are submitted to them and they select.

The CHAIRMAN. They select from the list submitted to them?

Mr. SMITH. And they also suggest names.

The CHAIRMAN. If the farmers suggest a certain person, you agree to his selection?

Mr. SMITH. If he had the qualifications we thought he ought to have. That is, we think he ought to be acquainted with the research work of the State and Federal Departments of Agriculture and that he ought to have had good training in agriculture; under those circumstances we would accept him.

Mr. McLAUGHLIN of Michigan. You would not appoint a man who was objectionable to the farmers?

Mr. SMITH. We would not appoint a man who was objectionable to them; but we must feel that he is competent to extend the work of the agricultural college and of the Department of Agriculture. If we do not feel that his training is good enough for that we do not make his appointment.

The CHAIRMAN. An estimate was made for a large increase for the Bureau of Crop Estimates. Could the service of those county agents be utilized in connection with crop estimating?

Mr. SMITH. I think the county agents can be of very great service in connection with that, but I do not think that they should at all assume responsibility for that service.

The CHAIRMAN. What service are they rendering now?

Mr. SMITH. They are bringing to the attention of the farmers the importance of having accurate information on crops and live stock. They are asking the farm bureaus to appoint a committeeman in each part of the county who will work with the Government in making those reports. That committee usually meets and makes its monthly report in the county agent's office, so that he is informed as to what they are doing, and the results are sent to the States. In other words, the county agent handles the work on just about the same plan he would handle any other line of work. He gets the farmers to do it—at least, they do it—and the county agent does not assume any responsibility.

The CHAIRMAN. Could he not, without additional trouble or expense, interview the reporters, get ideas from them, and form a fairly accurate opinion as to the yields and the condition of the crops?

Mr. SMITH. If you made it mandatory on him to visit these crop reporters and get their views, I am afraid you would embarrass him in his regular work. If that was made a regular part of his duties, I am afraid that it might greatly embarrass him; and I am sure we can get practically as good results without making it more or less obligatory.

The CHAIRMAN. In my opinion, cooperation is worth a lot; and it seems to me that the two bureaus should cooperate.

Mr. SMITH. Yes.

The CHAIRMAN. I am trying to find out how much cooperation you have arranged for.

Mr. SMITH. We are cooperating now in the State of Idaho, which, as I have said, I think is one of the best organized States in the Union for crop-reporting work, in which that work is being very effectively carried on through cooperation between the county agents, the farmers themselves, and the State crop reporters.

The CHAIRMAN. Has that worked out satisfactorily?

Mr. SMITH. Very satisfactorily. I think Mr. Estabrook thinks very highly of that plan, and I do not know why it can not be adopted in practically all the States. It is being tried out now in that particular State, and we may have a fund of information to present to the other States to show how it has been worked out and to encourage other States to take it up, if it works out finally as satisfactorily as it now seems to be doing in Idaho.

The CHAIRMAN. Your bureau would be willing to cooperate with the Bureau of Crop Estimates?

Mr. SMITH. Yes.

The CHAIRMAN. And you feel you can be of great service to them?

Mr. SMITH. Yes; we do.

The CHAIRMAN. I do not think there is any question but that you can be.

Mr. McLAUGHLIN of Michigan. The Bureau of Crop Estimates is estimating for a tremendous increase; an increase of \$550,000 more than they had last year. If that work can be done by somebody already in the employ of the Government, it might save a lot of money.

I would like to ask one or two more questions about this chart which is before us. On the right hand, under "specialists," you have "100" in each column. What does that mean?

Mr. SMITH. That is just a rough estimate, if we are going to develop an extension system, of what we will need. If specialists are a part of that system, these figures indicate how many it is going to take. Your guess is perhaps as good as my guess on that.

Take the veterinary work here [indicating on chart]; if the extension veterinarian dealt with as many as 30 county agents and kept them posted on animal diseases and how to handle them and how to extend that work to the farmers, the question is, would that not be about the reasonable number of specialists to have—one for each 30 counties, say, in veterinary science; and the same thing with dairying, with its various branches? This is just a rough estimate

of possibly how many it would take, eventually, if the extension system was completed.

Mr. McLAUGHLIN of Michigan. Evidently some think that the county agents need instruction in this veterinary science, as you have termed it there, because, when it was suggested by another bureau that they must have men from their bureau go out to see about hog cholera and tuberculosis, it was asked if the county agent could not do any part of that work, and they said "No; the county agents do not know enough to do it."

Then this chart is not a statement at all of what you are doing now?

Mr. SMITH. Not at all.

Mr. McLAUGHLIN of Michigan. This is only a suggestion for the future?

Mr. SMITH. I understood there was some question as to what extent specialists ought to be employed, and I was just trying to get this more for my own information than anything else.

Mr. McLAUGHLIN of Michigan. If this plan should be carried out as outlined, it would take \$6,000,000.

Mr. SMITH. It would mean 1,500 specialists.

Mr. McLAUGHLIN of Michigan. Where would you get the money?

Mr. SMITH. The States would provide that, probably. You can see that a college which has a strong department in farm management, for example, will want to extend that work in the State and will desire an extension specialist for that. How many counties can he handle? Not more than 30, probably. If one man deals with the county agents and farm-management problems in 30 counties, he is doing a pretty good job.

Mr. McLAUGHLIN of Michigan. Has it not occurred to you that a part of your time might be well spent in suggesting to the States that the Federal Government is not going to do this, and that if it is going to be done they must get a move on and do it themselves?

Mr. SMITH. I think they have that in mind, as the States now are putting in about two dollars to the Federal Government's one. The specialists are perhaps in larger number in the North now, because when this work started they had a great many specialists to begin with and but few county agents. They have kept those specialists, and, in addition, as the county-agent work has been developed, particularly during the war, they found that they needed to have men trained in the particular subjects to keep those county agents up on all lines.

Mr. McLAUGHLIN of Michigan. When this chart was put before us I thought it would show the number of men now employed and the lines of work in which they were employed.

Mr. SMITH. I did not have time, after I thought of the matter, to make such a chart, but such a chart could be made, showing the men we have and the different lines they are engaged in.

Mr. McLAUGHLIN of Michigan. If it seems necessary to reduce this appropriation, I presume it might be reduced by not employing these special agents, but leave the work largely to the county agents, to get along the best they can during the time of short money?

Mr. SMITH. I do not know just what the colleges would do. I think they would want to be sure that those agents were competent and well supported in certain lines, and they might find it necessary

to reduce both their specialists and their agents so that they would handle those lines that were most vital to that State.

Mr. McLAUGHLIN of Michigan. Each State has signified its desire to give money under the Lever law and so far has supplied its part of the funds?

Mr. SMITH. Yes, sir.

Mr. McLAUGHLIN of Michigan. You do not anticipate that any of the States will refuse hereafter to contribute money enough so that they can come under the Lever Act simply because you or the department will not spend money for these specialists, do you?

Mr. SMITH. I did not quite get the significance of your question.

Mr. McLAUGHLIN of Michigan. Each State is now contributing the full amount of money under the Lever Act?

Mr. SMITH. Yes, sir.

Mr. McLAUGHLIN of Michigan. Do you not think they are going to continue to do that even if you do not appropriate money for sending out all these specialists?

Mr. SMITH. The States Relations Service is not sending out any of these subject matter specialists.

Mr. McLAUGHLIN of Michigan. You are sending out some?

Mr. SMITH. Yes; the Department of Agriculture as a whole is.

Mr. McLAUGHLIN of Michigan. This is a larger plan that you have in mind if you had the money?

Mr. SMITH. This contemplates what the States and departments cooperating should have when we get 3,000 county agents.

Mr. McLAUGHLIN of Michigan. We have no objection to the States spending that \$6,000,000, but my idea was that that would be the total cost to which you would contribute about one-half.

Mr. SMITH. No. It was not contemplated that the department would contribute so largely.

Mr. McLAUGHLIN of Michigan. Then this is simply a suggestion as to what the States ought to do and may do.

Mr. SMITH. Yes; showing you the number of specialists that may be needed if you have a complete and efficient extension system.

The CHAIRMAN. Would you suggest that the specialists instruct and educate each agent along that line, or would you suggest that they come together at some point for instruction?

Mr. SMITH. It would be done both ways.

The CHAIRMAN. If you send out a specialist to teach one county agent at a time you would not get very far.

STATEMENT OF DR. A. C. TRUE, DIRECTOR OF THE STATES RELATIONS SERVICE, DEPARTMENT OF AGRICULTURE—Continued.

Dr. TRUE. In this connection there is another suggestion that the committee ought to keep in mind in thinking of these specialists. It is not simply the county agents that need these specialists, but the farmers. There is an increasing demand, as I understand it, from the farmers, through their farm bureaus and otherwise, to have the service of these specialists. They want to see the people from the college and these specialists not only go out and instruct the county agents, but they actually engage in the work in the field, holding meetings and extension schools; and to cut them off

to any considerable extent would be contrary to the wishes of the farming people.

Mr. HERLIN. If you cut them off, as has been suggested, Doctor, do you think it would help or hurt the work?

Dr. TRUE. It would hurt the work seriously.

Mr. McLAUGHLIN of Michigan. I want to say to Dr. True that I do not question the desirability of this work, even the extension that is outlined on this chart. I was just suggesting that it may be that we can not go into it for want of money. It may be very desirable, the farmers may want it, but we have got a Treasury to look after.

Dr. TRUE. I admit that it is a difficult situation, but I think, as I have said, that the interests of agriculture and the general interests of the country, the general increase in the wealth of the country, demand that this extension work as projected now should not only be kept up but should be increased in a reasonable way in order to take in more of the country.

Mr. ANDERSON. Doctor, you are two years ahead of the contemplated maturity of the Lever Act now.

Dr. TRUE. But we are several years back as far as the value of the dollar is concerned.

Mr. McLAUGHLIN of Michigan. You have not lost sight of the fact that the original idea was that these special appropriations might be cut off? You remember the idea was that as the Lever Act grew the special appropriations would be reduced. You have not forgotten that, of course?

Dr. TRUE. I have not forgotten that, but my view is that the whole condition of things has changed within the five years since the Smith-Lever Act was passed. The value of the dollar has materially decreased meanwhile, while the interest of the farming people in the developing of this system of popular education has vastly increased. The results from this system, from the money point of view, have been very large. This system has justified itself very fully, as I believe you will agree, and it seems to me that it will be unfortunate to stop the progress of the movement at this time.

Mr. McLAUGHLIN of Michigan. I am not saying that it should be stopped. I am only one on the committee. I was just reminding you that when the Lever Act started these special appropriations were in full swing, and it was thought that they could be done away with as the Lever Act increased.

Dr. TRUE. At that time it looked like a great deal of money indeed.

Mr. McLAUGHLIN of Michigan. It is a lot of money now.

Dr. TRUE. But the whole thing is changed. We look at things in a much larger way now than we did five years ago, in every line of enterprise in this country.

Mr. McLAUGHLIN of Michigan. I am afraid you will have to keep down to earth, Doctor, on some of these things.

The CHAIRMAN. What is the next item, Doctor?

Dr. TRUE. Mr. Chairman, I had prepared several tables showing the way in which these funds are used. Would you like to have those put in the record?

The CHAIRMAN. We will be very glad to have them.

Dr. TRUE. I will simply leave them for that purpose.

The CHAIRMAN. They might as well be inserted at the beginning of your remarks. Are the tables printed in any pamphlet or bulletin form?

Dr. TRUE. No, sir; most of them are new tables.

The CHAIRMAN. Then they had better go into the record.

Mr. McLAUGHLIN of Michigan. You have made a great many transfers to the statutory roll. I suppose if those were not approved they would be turned back to the lump sum, and if the lump sum is not sufficient to carry them they would be discharged?

Dr. TRUE. I do not understand that we have any authority to put those back on the lump sum.

Mr. McLAUGHLIN of Michigan. They would have to go back, would they not?

Dr. TRUE. Not if the suggestion of putting them on the statutory roll is approved.

The CHAIRMAN. They are on there now, are they not?

Mr. McLAUGHLIN of Michigan. If those transfers are not approved, these employees will remain on the lump fund, will they not?

Mr. HARRISON. Yes; unless the committee indicates that they should be dispensed with.

Mr. McLAUGHLIN of Michigan. No; Congress would say how much money would be available on the lump fund, and then you would have to cut.

Mr. HARRISON. If Congress does not make the transfers proposed, it will be necessary to keep the employees on the lump fund if their services are required to do the work.

Mr. McLAUGHLIN of Michigan. Suppose the lump sum was reduced?

Mr. HARRISON. If the lump fund is reduced, we will, of course, have to make such adjustments in the work and personnel as may be necessary. If it should appear that the services of any of the employees can be or must be dispensed with, their appointments may be terminated; or, if they are needed in another bureau, they may be transferred to that bureau.

The CHAIRMAN. How much money is involved in the transfers to the statutory roll?

Mr. HARRISON. Mr. Chairman, the figures are given in the first day's hearing.

The CHAIRMAN. For 1920 you have \$6,575,390; you estimate \$5,431,290. So you have taken off of the statutory roll over \$1,000,000—\$1,144,100. You have dropped that from the statutory roll.

Mr. HARRISON. There are 378 transfers with salaries aggregating \$450,780. There are 80 new places in the estimates, involving a total of \$113,390. There are 36 places dropped, calling for a reduction of \$27,660. There is an apparent increase, therefore, on the statutory roll of \$536,960.

The CHAIRMAN. The tables on page 290 of the Book of Estimates, total salaries, Department of Agriculture, for the current year show \$6,575,390.

Mr. HARRISON. The difference is explained, Mr. Chairman, by the fact that we suggested in the estimates that 1,402 places occupied by forest supervisors and forest guards, whose salaries amount to \$1,673,540, be transferred to the lump-fund roll.

Mr. HUTCHINSON. Have you the total number of men employed by the Department of Agriculture?

Mr. HARRISON. Yes. On the 31st of October there were 21,364 employees; now there are something like 20,900. There has been a constant reduction during the past several months.

The CHAIRMAN. Thank you, Mr. Harrison.

STATEMENT OF DR. C. F. LANGWORTHY, CHIEF OF THE OFFICE OF HOME ECONOMICS, DEPARTMENT OF AGRICULTURE.

Dr. TRUE. I would like to depart from the regular order of the items in the Book of Estimates and take up the Office of Home Economics next, if that is agreeable to the committee.

The CHAIRMAN. Very well.

Dr. TRUE. That is item 42, on page 224:

To enable the Secretary of Agriculture to investigate the relative utility and economy of agricultural products for food, clothing, and other uses in the home.

The CHAIRMAN. An actual increase of \$30,000.

Dr. TRUE. We are asking for an increase of \$30,000. That is the same amount which we asked for last year, Dr. Langworthy, who is the chief of that office, is here and, if agreeable to the committee, I would like to have him speak of some of the details of his work.

The CHAIRMAN. We shall be glad to hear him.

We inspected your work last year, I believe.

Dr. LANGWORTHY. Yes, sir. We were very glad that you did so.

Thinking that you might like to see samples which illustrate the character of our work, I have brought some. We have tried to introduce economies in the preparation of food, economies that could be practiced in the household without lowering the quality of foods, but would help the housekeeper to keep up her standards without increasing expenses, and so help her in her effort to cope with the increased cost of living, and we have found a number of things which we believe will help her.

One of them is illustrated by this sample, which shows that it is perfectly possible to make good pie crust with considerably less fat than the housekeeper ordinarily uses. It is also possible, as this sample shows, to make doughnuts and other things fried in deep fat in a way which prevents absorption of an undue amount of fat. These apple turnovers are made with a crust containing 3 tablespoonfuls of fat to a cup of flour, which is half the amount that the usual recipe calls for. To learn how to use such smaller amounts of fat successfully depends upon tests which show us the proper manipulation of the ingredients, that is, the way they are put together, and how the amount of water in the dough should be varied—for example, less water than the housekeeper is in the habit of using must be used to give the desired result.

Lessening the absorption in frying in deep fat, we have found in a series of studies, depends upon the amount of shortening that is used in the recipe and the character of the gluten of the wheat flour used. We have found that by using hard flour or diluting the flour with some mashed potatoes and diminishing the shortening the amount of fat absorbed is lessened materially. The ordinary doughnut may take up fat equaling 50 per cent of its weight before frying.

That means a product which is too rich, though it is a common type of doughnut. By modifying the recipe in the way recommended one gets what I think you will agree is a good product. In this perfectly rational way a very considerable saving in household cookery can be made.

Those samples illustrate the kind of work we are carrying on and show how our research studies can help the housekeeper to solve practical problems. Such apparently simple conclusions are based on a very considerable amount of laboratory work.

Our work is distinctly research work. We are trying to accumulate material for the extension agents which will prove of use in their home-economics teaching. While the whole Department of Agriculture contributes material relating to crop production and animal production and other phases of farming, the Office of Home Economics, which you have authorized to study the household problems, is the only branch of the Government service which deals specifically with these home problems.

Logically, as I see it, our work is justified for two reasons: The department devotes a vast amount of money to the agricultural production; that is, to the production of farm crops, both animal and vegetable. It is now devoting, through the Bureau of Markets, and in other ways, large sums to the distribution of agricultural products, which, using the term broadly, includes both manufacture and distribution. Now, production, distribution, and consumption represent three phases of any such problems. The sum devoted definitely to the ultimate consumption of agricultural products, namely, that assigned to the Office of Home Economics (for in the last analysis the consumption of agricultural products is by the individual and by the home), is not in proportion to the other two. The only reason we produce food is that mankind may eat it.

Another reason why we should help the housekeeper by such work (carried to her by the extension agent and by the department's publications) is that in her hands rests the expenditure of 75 per cent to 95 per cent of the total money spent in the United States. That is a fact, it seems to me, on which expenditure for home-economics work is justified. That the department's work is actually of use to home-economics workers, extension teachers, and housekeepers is shown by the way housekeepers turn to us for just such practical information as we are able to give them as a result of the study of individual problems by carefully conducted experiments. We have not been able to keep up as we should. The opportunity for usefulness is very much larger than our resources.

It seemed not without interest to bring a printed copy of a summary of the work of the Office of Home Economics for the year 1919, presented at a home-economics meeting last June. A list of papers reporting work of the current year is also here. It includes the following:

Absorption of Fat by a Dough or Batter when Fried in Deep Fat.

Use of Homemade Sweet Potato Sirup in the Household.

The Use of Sweet Potato Flour in Cookery.

Experiments in Methods of Cooking Dried Fruits.

Experimental Studies of Jellies and Jelly Making.

Comparison of Hog, Lamb, Calf, and Beef Liver, and Their Cooking Qualities.

Miso, a Soy-bean Food Product.

The Use of Gas in Cooking, with Suggestions for Economical Methods.

Progress Report on the Keeping Quality and Condition of Vegetables Canned in Different Ways.

Digestibility and Tolerance of Some Wheat Flours.

Digestibility of Certain Vegetable Fats—Cohune, Palm-kernel, Hemp-seed, Poppy-seed, and Capuassu.

Digestibility of Raw Cornstarch.

Digestibility of Horse, Kid, Rabbit, and Seal Meat.

Effect of Milling on the Digestibility of Graham Flour.

A Course in Home Dietetics—in cooperation with the American Red Cross.

Study of Farm Homes in St. Joseph County, Mich.—in cooperation with the Office of Extension Work in the North and West.

Energy Value and Gaseous Exchange of Some Fruits—Bananas, Pineapples, and Apples.

With regard to some of the work these papers represent, it may be said, for instance, that the department had been asked why lamb liver was not more often used. Lamb liver is certainly edible, but it is not so palatable as the other kinds of livers used, as a careful comparison showed.

The Bureau of Chemistry is particularly interested in a soy-bean product called miso, something much used in the Orient, and studies of its possible use in American cookery were needed. The results were favorable.

The study of the use of gas in cooking gave interesting results. We found, for instance, that a simple modification of many gas stoves or gas plates would save a great deal of gas. The flames were not the right distance from the bottom of the saucepan or kettle in which one cooks. Manufacturers, I feel sure, when this is pointed out to them, will be very glad to see that such adjustments are made.

The question of soft pork came up this morning. The Bureau of Animal Industry requested information on the cooking quality of such pork in comparison with other pork. We found that the soft pork (bacon) often, but not always, gave up more fat, or will try out more when fried, than the other pork that is not called soft pork. We found that in some cases, but not uniformly, the flavor was inferior. We believe that an extension of those cooking tests will throw some light on the possible uses of soft pork in the home by improving methods of using it and help to better the market for it. The work is not completed, but it is very encouraging.

The report on the keeping quality of vegetables canned in different ways shows that progress has been made. This kind of work, which includes a study of the causes of spoilage in home canning by different methods, makes clear the importance of more investigation in order that we may avoid botulinus poisoning. That is a problem which calls for all the attention that can be given it. Commercial canners are studying it from their standpoint. It must be studied for home canning.

As one of the reports mentioned shows, the digestibility of wheat flours has been further studied. This is the old question of whole-wheat, Graham, and wheat flour, and we have new evidence which I think is of importance regarding the use which can be made of all of them.

Then we have studied the digestibility of certain vegetable fats, including among others cohune, palm-kernel, hempseed, and poppy-seed oils, which are not used any more at the present time than cottonseed oil was used 20 years ago, but which, I think, we may use

in the future, for a more abundant fat supply is surely needed, and these fats have many possibilities.

The report on the digestibility of raw cornstarch is very interesting, for it will change the usual textbook statement that raw starch is not digested by human beings. Raw cornstarch was found to be completely digested, and so was wheat starch. Potato starch was found to be less so. How other starches will turn out we do not yet know.

As regards the studies of the digestibility of meats, there was a special reason for including each kind tested. Horse meat was of interest because of the discussion about its use during the war period. Seal hams are used in the Pribilof or "Seal" Island for food and are considered good. A request was made to study their digestibility and food value, to see whether there was any possibility of adding them to the meat supply of the United States. We found the meat well digested. The flavor was distinctive.

Mr. McLAUGHLIN of Michigan. How do you study the digestibility of any food?

Dr. LANGWORTHY. We have a selected number of young men who serve as subjects. They are given a diet for a period of three days, or nine meals, in which the food studied predominates. To the first meal of the experimental period and the first meal after it animal charcoal is added, which colors the feces black. The separation of the feces pertaining to the experiment is then an easy matter. Food and feces are analyzed. The undigested residue of each food constituent subtracted from the total eaten shows the amount retained in the body, i. e., digested. The value for the food specially studied is then calculated, using factors determined in our laboratories. The technique of such experiments has been greatly improved in the Department of Agriculture. In this way we can find what man obtains from different foods. It is like determining the amount of coal one finds in the ashes from a furnace as compared with what one puts on the fire to show how well the coal is burned.

Mr. McLAUGHLIN of Michigan. Does that determine the time it takes to digest food?

Dr. LANGWORTHY. Such tests show the thoroughness of the digestion. The time of digestion is studied by other methods. We can make such studies but are not doing so. A common method of obtaining such data is by means of studies with samples of food digested in test tubes with ferments like those found in the body. By time of digestion one usually means the time the food remains in the stomach. Digestion continues in the intestine. Generally speaking a man who is in normal health and regular habits excretes every 24 hours the residue from his previous days' food. There are many exceptions, but this seems a general rule. Habit, exercise, and proper food are factors in insuring this regularity.

The CHAIRMAN. Will you tell us something about horse meat?

Dr. LANGWORTHY. We found that horse meat was well assimilated. Quality, I suppose, depends much on the age of the horse. Young animals are not likely to be slaughtered for food. The older animals are likely to be rather tough.

The CHAIRMAN. That would be true of the ox meat also?

Dr. LANGWORTHY. Yes. We found that horse meat was as thoroughly digested as other meat.

Mr. McLAUGHLIN of Michigan. You determine the digestibility of some of these foods by experimenting with the foods?

Dr. LANGWORTHY. Yes.

Mr. McLAUGHLIN of Michigan. Those foods are to be used by animals?

Dr. LANGWORTHY. These foods are studied to obtain data regarding their use by man. We work with those which for one reason or another are of some special interest. For instance, we studied rabbits because the Biological Survey of the department is interested in rabbit growing as a home industry and wanted to know whether rabbit meat was digested as well as other meat. We found it was. We also studied ways of cooking it.

Mr. McLAUGHLIN of Michigan. I gathered that some of these foods were to be fed to animals, and the digestibility of them was to be determined by your experiments.

Dr. LANGWORTHY. I did not mean to say that.

Mr. McLAUGHLIN of Michigan. I was mistaken, then.

Dr. LANGWORTHY. I may have made a slip of the tongue.

The CHAIRMAN. Do you consider horse meat wholesome?

Dr. LANGWORTHY. I think it must be wholesome and that it is generally admitted to be so. It may, perhaps, be of interest to know how it came about that the people of western Europe did not eat horses. Horses were formerly used for food there, but in the eighth century, when it was found that there was a shortage of horses for the papal cavalry, a papal edict forbade the use of horseflesh in food. As a result the use of horse meat went completely out and was forgotten, and it was not until the Franco-Prussian War, in 1870, it came into use again. This fact is very interesting to anyone who is interested in the history of food.

Mr. LEE. How many years ago?

Dr. LANGWORTHY. It was in the eighth century, when Pope Gregory III issued this edict.

The CHAIRMAN. Is it as palatable as the others?

Dr. LANGWORTHY. I do not think it is as palatable as beef and its texture seems coarser, but most of us, if it was a good cut, would, I suppose, eat it without thinking much about it.

Mr. McLAUGHLIN of Michigan. Whale meat is palatable?

Dr. LANGWORTHY. It is said to be good. I have not had a chance to try it.

Mr. McLAUGHLIN of Michigan. It is said to resemble beef very much. The lean meat is red and the fat meat is white, and it is sometimes difficult to distinguish between beef and whale meat.

Dr. LANGWORTHY. We have never been able to get any for experimental purposes. I had hoped we could, as it was much discussed during the war. It was studied in Canada, I believe, under Government auspices.

What has been said gives an idea of some of the problems which have been studied, many of them at the request of other bureaus of the department. It shows the kinds of experimenting that we are doing with foods in the digestion laboratory or in the experimental kitchen.

We have also been studying different kinds of household labor to find out how much time women devote to the different kinds of household tasks and the draft on human strength by each kind of task.

We have used the respiration calorimeter for such experiments. Different kinds of household work were carried on in the respiration chamber, and the energy expenditure measured in terms of heat—that is, in calories, a calorie being equal to 1.5-foot tons—that is, work sufficient to raise 1 ton 1.5 feet. We have found, for instance, that a woman who is sewing uses about 7 calories of energy per hour per kilogram (2.2 pounds) body weight as compared with 49 calories when she does washing or ironing or sweeps floors. In other words, regarded as muscular work, it is seven times as hard work to do that kind of work as it is to sew. Obviously, to save strength one should first strive to find good, easy methods and effective labor-saving devices for such hard work as washing, ironing, and scrubbing, rather than for a light task, in order to make housework easier.

We have also found that we can lessen the labor required for household tasks, as, for instance, by adjusting equipment to height. This table would be too low if I were to wash dishes on it, because I would have to stoop. If I could have a table of such height that when my arms are dropped to my sides and the elbows bent to a right angle, the forearm would rest on the surface of the table; it would “fit” me; for then I would not have to bend the upper part of my body up and down—that is, move weight needlessly—and I would expend less energy. That may seem far-fetched, but it is not, because it is going to mean better equipment for the future; indeed, manufacturers are now interested to make kitchen equipment with adjustable legs, so that a tall woman will not have to work with equipment suited for a woman 5 feet 4, or a short woman work at a table too high for her. So simple a thing as changing the height of the kitchen sink would save many a woman much needless work.

The clothing and textile work is of interest, too. The cotton, wool, and other fibers which agriculture produces are all used very largely in the home for clothing and household purposes. Their right use (a matter largely in the woman's hands) is a great feature of consumption, as compared with agricultural production and distribution. As we use the terms “clothing and textiles,” we do not mean fashions at all; we mean the study of wearing quality, ways of cleaning and caring for clothing so as to secure the maximum of service, and such things. For lack of funds, we have been able to do little experimental work, though we have collected and interpreted some useful information which the department is publishing as opportunity offers. What it is possible to do was shown when by the large amount of valuable information brought together last summer we were able to bring to Washington for three weeks a woman, now at the home economics department of the Iowa Agricultural College who is better fitted than anybody we have heard of, to study by experimental methods such questions as they are related to home problems. Funds for such a specialist are greatly needed. If we could get such a woman as I have mentioned, she would do splendid work on such problems. These are not unimportant matters. I happen to know that manufacturers are very much interested in having the wearing qualities of cloth of different sorts determined, in order that they may make cloth that will give good wear for a given purpose.

For years we have been wanting to study those problems so that we could tell the housekeeper if she bought such and such a kind of

material for pillow cases or for table linen or for her children's clothing that she might expect that, given proper care, it would give service for so many months or years. As it is, she is not able to make such estimates for she must judge largely by appearance, and appearance is not a dependable indication of quality. Good appearance may be due to the fact that the goods has been heavily sized with starch and may not last after the material has been washed, or she may buy a piece of silk which looks all right, but which may soon drop to pieces, because it was too heavily weighted with tin or iron salts, which give "body" much as starch does. In a case I know of, the silk lining in an overcoat wore out after about two months. Pure silk will burn up and have no ash, or only a trace. A sample of this lining was burned and the ash left behind amounted to 50 per cent of the weight of the silk burned. The silk had been very heavily weighted with an iron compound. The dealer when informed took up the matter with the jobber and it was satisfactorily adjusted. Information of this character (and much can be accumulated by laboratory research) should be provided for the housekeeper to enable her to judge the probable value of what she buys.

Mr. McLAUGHLIN of Michigan. If the housekeeper or if a woman were going to buy silk, and two pieces were shown, one that was weighted and one that was not, can you teach her to distinguish between them?

Dr. LANGWORTHY. Yes, sir. It is a very simple thing to make a test which will show weighting and roughly, at least, the amount of weighting. As silk burns it seems to melt and has an odor like burning wool. Pure silk will burn up so that you have practically nothing left. If it is weighted, more or less ash will be left behind. If it is heavily weighted, the ash often retains the form of the silk before it was burned, so that one can see the weave. To cite a particular instance of the value of such a test, the wife of one of the men in the States Relations Service showed us a sample of silk and asked about its quality. We told her that it was probably weighted, as the price was low for pure silk. This proved to be the case when a test was made and she had data which would enable her to decide whether to buy the silk which looked well but would not wear very long or to pay more for a better quality which would give longer service.

Mr. McLAUGHLIN of Michigan. Is there no way of distinguishing except by burning?

Dr. LANGWORTHY. There are others, but they are not so simple. It is a simple test. Anyone can make it; if pure, the silk burns up; if not, it leaves a noticeable ash. A little weighting does no harm and may even improve the texture of the goods; but if there is a great deal the fibers break and the material goes to pieces. I believe about one-fifth of the total weight of the material is considered a safe amount. If the sample does not shrivel at all when burned, I should not buy the material.

Mr. McLAUGHLIN of Michigan. Is it an easy test to apply? Is not silk usually bought in the store without an opportunity for applying the test you suggest?

Dr. LANGWORTHY. Usually a sample will be given on request, and this can be tested at home. If a guarantee could not be obtained for

a ready-to-wear garment, I would ask for a tiny scrap from the inside of a seam, for instance, and test it for quality.

Such matters as these are perfectly practical. In a series of Thrift Leaflets published by the Department of Agriculture, cooperating with the Treasury Department, many suggestions are made which will enable a housekeeper to choose clothing and household equipment wisely, so that it will give a maximum of good service and so make our incomes go further.

Mr. YOUNG. The burning test is an old test to determine whether a piece of cloth is wool or cotton?

Dr. LANGWORTHY. Yes, sir; you can tell wool from cotton in that way, but you can not apply the test to mixed goods. However, one can dissolve the wool in mixed goods by using a caustic alkali—soda, for instance—and leave the cotton behind.

Mr. YOUNG. It is curious to note that when you go into a gentleman's furnishing store how what you take to be wool is 80 per cent cotton.

Dr. LANGWORTHY. I think the manufacturers want to do the right thing, and I do not think that goods are often knowingly sold with fraudulent intent. However, I want the housekeeper to have knowledge so she may know what she wants and buy intelligently. Manufacturer and dealer are the first to see the importance of this, I believe.

You will recall, I am sure, the work with the respiration calorimeter. It is proving of great potential value, and we want to increase it and make it really effective. Before the war we were working on the incubation of hens' eggs. With tested eggs an incubator is probably not over 55 per cent efficient on an average, while the hen hatches about 95 per cent of the fertile eggs that you give her. From the results we obtained we have good reason to think that we are on the track of the trouble with the incubator, and it is needless to say that if we succeed in solving the problem the return to agriculture would be far beyond any sum that we have spent for home-economics work or contemplate spending.

We have not been able to do all we should with the bee problems, such as the control of the wintering bees so that it may be done economically and with a minimum loss of bees. The work was done at the request of the Bureau of Entomology and the results were used but more data are needed.

The question of the nature, extent, and control of the changes that take place in fruits and vegetables in storage is attracting a good deal of attention. Our respiration calorimeter studies of such problems give very promising results and have attracted the attention of those interested in such problems and a demand for more information. Apples, potatoes, celery, pineapples, bananas, and such things are still living things when they go into storage in cars, ships, or storage plants. With the pineapple and the banana the problem is largely to keep them green until they can be gotten from where they grow to the place where they are to be used and then to ripen them. Bananas are, as everyone knows, received green and ripened by hanging where it is moderately warm, often, in the trade, in banana cellars. With a respiration calorimeter which we have devised, the nature of such changes is studied and their possible control. We are confident we can obtain information which will be of great value

in the handling and marketing of such products and benefit both the producer and the consumer.

Apparently cold-storage charges for fruits and vegetables have been based on estimates rather than on determinations of the specific heat and the heat elimination of products in storage. The Bureau of Markets asked us if it were possible to study the matter of specific heat, and especially with regard to apples. All substances retain a certain amount of heat, called the specific heat, which varies with the material. The specific heat of water is taken as 1 and the specific heat of every other substance compared with it. Information about the specific heat of apples was wanted in order to determine what part of the cost of cold storage should be charged to the withdrawal of this specific heat when the fruit is first placed in cold storage. One must also realize that the apple is a living thing. The ripening and mellowing changes mean that some of its substance is oxidized and heat is produced. Information regarding specific heat of apples and heat due to ripening changes which we obtained were appreciated, but the chief result of the investigation was the demonstration of the commercial importance of this kind of work. The specific heat of the apples was found to be 0.9 and the heat they eliminated was 0.04 calories per hour per kilogram of fruit at room temperature.

Mr. McLAUGHLIN of Michigan. What is that, Fahrenheit?

Dr. LANGWORTHY. About 70 degrees.

Mr. McLAUGHLIN of Michigan. You say you have worked out some of these things respecting cold-storage products. Do you know of any cold-storage people, either the owners of the plant or those who own the product, that have taken advantage of and use your methods?

Dr. LANGWORTHY. This calorimeter work represents only a beginning, but it has aroused considerable interest. The Bureau of Markets has made use of data, I understand, and that the trade is interested in the matter we have good reason to believe.

Mr. McLAUGHLIN of Michigan. You have nothing ready to give to the trade?

Dr. LANGWORTHY. We have only a little to make public, but we are getting something. The interesting thing to me is that we have proved that in this respiration calorimeter we have a device valuable far beyond our expectations for studying such distinctly agricultural problems of commercial importance. They are of interest also to the home, because they have to do with the possible market supply of food products. If the times were such that we did not have to think of economy, I know of nothing that would seem to me more promising as a profitable line of work than extended research involving considerable sums for this calorimeter work. A small increase has been asked for the calorimeter work, and I do want to speak of its value for agricultural research. You see, when it touches such a problem as increasing the efficiency of artificial incubation of hens' eggs and the economical wintering of bees; when it promises to give information which will help in estimating the actual cost of storage and which will enable us to control better the changes which take place in fruits and vegetables in storage, it is potentially a very important kind of experiment.

Regarding the work in home economics as a whole, the increase asked for would provide for a modest and logical development of the kinds of work now going on, and enable us to meet somewhat more

fully the demands that are made on us for information. I feel that I can truly state that we have used efficiently the sums that we have had, and I believe that our plans for future work are rational ones. Home economics is really science applied to the problems of the final consumption of agricultural products, and we can not get the full value of the products of our soil unless we apply science to consumption as we have applied it to production and distribution. This is particularly impressed upon us in these days, when prices have gone so high and the incomes of many families have not kept up with them. The average housekeeper needs expert help to keep up her family standard of living, just as a farmer needs expert help in producing and marketing his crops.

MR. HUTCHINSON. When you began your statement, Doctor, you interested me with a reference to hard winter flour, hard wheat flour. Do I understand you to say that hard wheat flour would take less fats?

DR. LANGWORTHY. The use of hard wheat flour in foods for deep fat frying means less absorption of fats, other things being equal. Apparently the gluten forms a "crust" through which the fat does not penetrate.

MR. HUTCHINSON. What is the reason? Is there more water in the hard wheat?

DR. LANGWORTHY. It is due to the gluten.

MR. ANDERSON. Is it due to the character of the gluten or to the percentage of gluten in the wheat?

DR. LANGWORTHY. To both, as I understand it.

MR. HUTCHINSON. Then you have not gone far enough to have given a definite reason why it takes less fat for hard winter wheat than the soft?

DR. LANGWORTHY. No, sir; not in detail. We are not equipped for the kind of chemical work which would be needed in order to give the reason.

MR. HUTCHINSON. It has always been the custom of the housewife to use soft wheat for pastry and cakes in preference to hard wheat.

DR. LANGWORTHY. She can get good results with either hard or soft wheat flour if she knows how.

MR. LEE. Were these pies here made with hard-wheat flour?

DR. LANGWORTHY. For the pies soft-wheat flour was used and for the doughnuts hard-wheat flour. The economy of fat in the pie crust depends in part upon lessening the usual amount of water and in part upon the way the ingredients are mixed. It is not a flaky pie crust such as many women like to make, but it is a tender, wholesome pie crust and means a considerable saving in the use of fat.

THE CHAIRMAN. What benefit is derived from saving fat?

DR. LANGWORTHY. An economy in the cost and, in the case of doughnuts, a product of good quality more wholesome than one very rich in fat.

THE CHAIRMAN. A variety of food is required to keep the body in normal condition, which requires fat, carbohydrates, protein, mineral, and water?

DR. LANGWORTHY. Yes, sir.

THE CHAIRMAN. You take that into consideration?

DR. LANGWORTHY. Yes, sir.

THE CHAIRMAN. Then what is the gain?

Dr. LANGWORTHY. We have learned that it is a very easy matter, without taking care, to get a diet which is overrich in fat. A better balance of nutrients is secured and a saving in cost effected when such matters are given attention.

The CHAIRMAN. Your contention is that a doughnut contains too much fat?

Dr. LANGWORTHY. Not necessarily; but frequently such is the case. Usually when a housekeeper makes a doughnut which is not pretty short to start with she gets one that is breadlike and rather tough the next day. We can give her definite directions for making doughnuts which are not over fat and which are not tough the next day. This example was used as an illustration of the way in which the results of scientific study of cooking problems can be applied practically in households to give better quality, more rational food, or greater economy.

Mr. JACOWAY. How long have these been made?

Dr. LANGWORTHY. The doughnuts and the pies were made this morning.

Mr. LEE. You have bulletins on this subject?

Dr. LANGWORTHY. No, sir; not as yet.

Mr. HUTCHINSON. In the cooking of the doughnut does the time that it remains in the fat have something to do with it?

Dr. LANGWORTHY. Yes, sir; that has something to do with it, but other things being equal what has been said is true. The surface exposed to the fat, which means the shape of the doughnut, has something to do with it also. With a hole in the doughnut, the surface exposed to the fat is larger than without it.

Mr. HUTCHINSON. Then, the length of the time has a great deal to do with it? .

Dr. LANGWORTHY. Yes, sir. At meetings of bakers' societies and such gatherings reports of work of this sort are received with much interest.

Mr. McLAUGHLIN of Michigan. You said that some of these things are interesting, but you are not asking an increase for those lines of work. Will you indicate for the record the lines for which you do wish an increase?

Dr. LANGWORTHY. Yes, sir; I can tell you what they are.

Mr. McLAUGHLIN of Michigan. Can you tell us how much money you wish for each branch? I thought possibly some of the work that you spoke of would appeal to the committee as necessary or proper to be extended and some might not.

Dr. LANGWORTHY. The bill as reported specifies an increase of \$30,000 less transfers to the statutory roll; this increase to be divided between the two projects under which the work is considered as follows:

(1) For studies of food, clothing, and textiles, and household equipment and management, \$24,280.

(2) For investigations with the respiration calorimeter, \$5,720.

The first of these two sums we would subdivide as follows:

(a) \$10,000 for study of food and its uses in the home.

(b) \$8,000 for study of clothing and textiles.

(c) \$6,280 for study of household equipment and household labor.

The sum for calorimeter work we have not tried to divide, but we would use it specially to study the problems of the possibility of

bettering the artificial incubation of eggs and to collect data relating to the storage of fruits and vegetables.

Mr. HUTCHINSON. Doctor, your department is a sort of fountain-head for the home demonstrations, is it not?

Dr. LANGWORTHY. Yes, sir. This is the only part of the department specifically authorized to supply such subject matter, and it is on the basis of the subject matter here collected that the school textbooks and college textbooks get most of their information on food.

Something was said to-day of nuts and their value as food. So far as I know, practically all the knowledge of nuts as food comes from the department studies of food.

The CHAIRMAN. Are you issuing any bulletins this year?

Dr. LANGWORTHY. Yes, sir; we have turned in the manuscript of five or six Farmers' Bulletins this year.

The CHAIRMAN. How many bulletins have been issued from your bureau?

Dr. LANGWORTHY. As a whole, the work has provided over a hundred Farmers' Bulletins and other popular publications, fully as many technical publications, and many more short summaries for publicity work. The amount of publicity material is comparatively large, because we regularly contribute one article a week to the department news service.

Mr. McLAUGHLIN of Michigan. Have you seen this chart behind you?

Dr. LANGWORTHY. Yes, sir.

Mr. McLAUGHLIN of Michigan. If that plan should develop, some scientists or experts from your office would go out, I presume, to assist the county agents in extension work. On what subjects?

Dr. LANGWORTHY. It would be on nutrition and clothing, and possibly we could be of some help on home hygiene also. We have occasionally been invited to some of the northern or southern extension meetings, but we do not regularly go out as experts. Of course, we would like to go out if there were opportunity, for this gives us a better understanding of what is needed throughout the country; but the home economics experts come to Washington rather frequently, and we try to meet them and talk with them. As a matter of fact, the extension offices and the Office of Home Economics together have equipped a laboratory so that we can give demonstrations of the new things if they wish when they are in Washington for any purpose. We try to reach them just as much as we can, and I will say the spirit of cooperation between the Office of Home Economics and the other offices, as well as between the States Relations Service and other departments, has been extremely satisfactory. The Treasury Department turned to us for help in their thrift campaign and drew on the information which we had.

The CHAIRMAN. What service did you render in connection with war activities? You assisted the Red Cross and others?

Dr. LANGWORTHY. Yes; we worked with the Red Cross and helped them prepare their textbooks on dietetics, and from the beginning we worked with the Food Administration.

The CHAIRMAN. You assisted them in the regulations?

Dr. LANGWORTHY. I was a member of one of the committees, the food and alimentation committee; we worked with the Food Administration just as effectively as it was possible for us to do. Our

work was naturally along the lines of food conservation. I was also a member of a district food administration committee.

Dr. TRUE. We prepared a large number of special leaflets for the Food Administration.

The CHAIRMAN. So I understood.

Dr. LANGWORTHY. We prepared a series of 24 food leaflets with them. We worked with them and got out a series of 10 lessons and 3 books for use in teaching food conservation: "Food and the War," "Food Guide for War Service at Home," and "Food Saving and Sharing." We also got out a bulletin with the women's committee of the Council of National Defense on "Agencies for the Sale of Cooked Food Without Profit," and, in cooperation with the women's committee and the Food Administration, a series of lessons for women's clubs, entitled "The Day's Food in War and Peace."

The CHAIRMAN. Is that all, Doctor? Thank you very much.

Will it take you very long, Dr. True, to complete the remaining items?

Dr. TRUE. There are three items. The large item is the item which relates to the experiment stations in Alaska and the island possessions.

The CHAIRMAN. That is the most important one?

Dr. TRUE. That is the most important one.

(Thereupon, at 5.30 o'clock p. m., the committee adjourned until to-morrow, Saturday, January 10, at 10 o'clock a. m.)

COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Saturday, January 10, 1920.

The committee met at 10 o'clock a. m., Hon. Sydney Anderson presiding.

STATES RELATIONS SERVICE—CONTINUED.

STATEMENT OF DR. A. C. TRUE, DIRECTOR OF THE STATES RELATIONS SERVICE, DEPARTMENT OF AGRICULTURE—Continued.

Dr. TRUE. The item we want to take up now is No. 40, on page 220, "To enable the Secretary of Agriculture to investigate and report upon the organization and progress of farmers' institutes and agricultural schools." This amounts in the estimate to \$16,360, to which must be added \$3,040 transferred to the statutory roll, making a total amount for this work \$19,400. This is \$1,200 less than the appropriation for the current fiscal year, because we have dropped one clerk who has been transferred to another roll.

About \$5,000 of this amount is spent for the work relating to the farmers' institutes. On that work we employ one man called a farmers' institute specialist, and one clerk, and the work consists mainly in the preparation of lectures on agricultural subjects, accompanied with lantern slides.

Mr. ANDERSON. Does this mean field work, or is this a supervisory official?

Dr. TRUE. He spends most of his time in Washington in the preparation of publications for use by the farmers' institutes lecturers;

he also goes out to consult with the directors of the farmers' institutes in the different States to find out how their work is going on and what they want him to do to help them.

Mr. LEE. He prepares those slides?

Dr. TRUE. He prepares the illustrations and the syllabi of lectures for use in the farmers' institutes, and also the annual report showing the work of the institutes throughout the United States and the work of similar institutions in foreign countries. It was supposed that the farmers' institutes in the United States would perhaps decline greatly and go out of existence as the extension work developed.

Mr. ANDERSON. Why?

Dr. TRUE. Because it was supposed that the extension work and the meetings of the farmers held in connection with the demonstration work would supply the place of the institutes. As a matter of fact, however, the farmers desire to keep up the institutes; so that work has continued. There are still 15 States in which the farmers' institutes are maintained by the State departments of agriculture instead of by the agricultural colleges.

Mr. ANDERSON. Is it the policy of the department to discourage the holding of institutes now?

Dr. TRUE. No, sir; we do not discourage it, but we believe the institutes should operate in conjunction with the extension work and are favorable to putting the institutes under the control of the agricultural colleges.

Mr. ANDERSON. My experience has been, at least before the extension work was developed to the extent it is now, that there was a very great and constantly growing interest in the farmers' institute work and that it was a very valuable work and one which was contributed to by local people as well as by the Department of Agriculture and the colleges. I should dislike very much to see it discontinued.

Dr. TRUE. There does not seem to be any prospect of its being discontinued. All the department is trying to do in connection with that is to make the instruction more practical. There has been a tendency at times in the institute work for meetings simply to be places where there was a lot of talk without much point to it in a practical way. Where the institutes are properly managed and are linked up with the extension work, that is overcome in a large measure. The farmers seem to regard this institute work as, in a sense, an open forum for the discussion of matters by themselves and by the experts that are called in.

Mr. LEE. I think it is a pretty good thing, Doctor.

Dr. TRUE. They like that sort of a thing.

Mr. LEE. I do, too.

Dr. TRUE. A sort of referendum on the matter was taken in the State of New York not long ago, and the farmers voted very decidedly in favor of continuing the institutes, and in that State the institutes were transferred to the agricultural college by the legislature.

Our records show that in 31 States which reported to us in 1918, 6,941 institutes were held, which were conducted by 2,000 lecturers and had an attendance of about 2,000,000 persons.

The remainder of this fund, about \$15,000, is spent on the work relating to the agricultural schools. The force employed on this work prepares publications and illustrative material in suitable form for immediate use in the schools where agriculture is taught. It is through this office that the department has its outlet to the agricultural schools and puts material for the schools in suitable form for immediate use. These publications are, of course, based mainly on the results of the work of the department and the experiment stations.

Mr. McLAUGHLIN of Michigan. I wonder if it would be convenient for you to let the committee have a sample of each of your publications, so that we can see just what they are?

Dr. TRUE. Yes; we would be glad to give you a set of them, of course.

Mr. McLAUGHLIN of Michigan. A great deal of money is being spent in publications, and there is a difference of opinion in some quarters as to the wisdom of some phases of that kind of work. I do not know enough about your kind of work to judge, although I know something about it.

Dr. TRUE. I shall be very glad to furnish the committee with them. Do you want those not only with reference to agricultural education but to all the work of the service?

Mr. McLAUGHLIN of Michigan. I think so. Just a sample of what goes out from your bureau.

(Mr. Haugen took the chair at this point.)

Dr. TRUE. We also have, through this appropriation, an opportunity to carry out the provision of the vocational education act, which provides for cooperation between the Federal Board for Vocational Education and the Department of Agriculture in studies relating to agricultural education, with special reference to schools in which the Smith-Hughes vocational education money is used. Examples of our work in this office are leaflets showing teachers how to use certain Farmers' Bulletins. These are also lessons on dairying, potatoes, etc., for the elementary schools. A good many of the States now require teaching of agriculture in the elementary schools, and it is difficult for them to obtain the properly qualified teachers for this work. So we endeavor to partially help out this situation by giving these teachers publications showing them definitely how they can give simple elementary instruction in agriculture.

Mr. McLAUGHLIN of Michigan. Is the expense of printing all this matter relating to your bureau, and all you have spoken of, charged against the bureau and carried in these estimates?

Dr. TRUE. No, sir; the printing is paid out of the general printing fund of the department.

Mr. McLAUGHLIN of Michigan. You carry nothing for that; your estimates carry nothing for printing?

Dr. TRUE. Nothing for printing. One thing we have done recently in cooperation with the Federal Board for Vocational Education has been to prepare a course of study in agriculture, particularly crop production, for the Negro schools which receive the benefits of the vocational education act. In carrying out this work, we prepared a bulletin and took it down to the Hampton Institute last

summer, where the teachers of the Negro schools in the Southern States congregate for short courses, and there we went over this bulletin with the teachers and gave them instructions on it, and also gave them information on this matter in order that we might make the publication most useful to those Negro teachers.

We are now engaged in cooperation with the college of agriculture and the State department of education in Arkansas in the preparation of a course of study in agriculture for the elementary schools of that State.

That is all I need to say about that item unless there are some questions.

Dr. TRUE. The next one is item 41, on page 220, "to enable the Secretary of Agriculture to establish and maintain agricultural experiment stations in Alaska, Hawaii, Porto Rico, the Island of Guam, and the Virgin Islands of the United States," for which the estimate this year is \$230,000. This is an increase of \$15,000, which is brought about in this way: There is an increase of \$15,000 for the Alaska stations and \$5,000 for the station in the Virgin Islands, and there is a decrease of \$5,000 for the station in the Island of Guam. These stations engage in research and extension work, but are not connected with colleges. They are wholly Federal stations; the general business connected with their administration as Federal institutions is conducted through our Office of Experiment Stations, and the expense of this administrative work is borne by the appropriation for that purpose. It is not included in this item which we are explaining now. This work has been explained to the committee from year to year, but, if you desire me to go into this as regards the individual stations, I shall be glad to do so.

Mr. ANDERSON. I do not know about the rest of the committee, but I would like to know particularly with reference to what has been done in the Virgin Islands. I read a short article some time ago in regard to the work being done down there and it rather interested me. I would like to know a little more about what has been done. It seems to me the work was very satisfactory to the people there, at least.

Dr. TRUE. Dr. Evans, who has charge of this work, can explain that.

STATEMENT OF DR. WALTER H. EVANS, CHIEF OF THE DIVISION OF INSULAR STATIONS, STATES RELATIONS SERVICE, DEPARTMENT OF AGRICULTURE.

Dr. EVANS. The station in the Virgin Islands was taken over January 1, 1919, just a year ago. It had been established by the Danish Government and was located about 3 miles from the principal town on the Island of St. Croix, which is the largest island of the group. The staff consisted at the time it was taken over of one man, who was scientist, manager, and everything else. The tract embraced about 235 acres, 170 acres of which are in cultivation and pasture. The principal income of the station has been for some time from the produce that was grown, largely sugar cane, which was sold to some of the sugar mills. The receipts from the sugar cane, from pasturage, and from other crops that were grown constituted practically the only source of income of the station prior to January 1, 1919,

when we took it over. Having such a limited income, the station had run down very materially and a large amount of work was necessary in the way of repairs to buildings and additions to the equipment, so that a considerable portion of our appropriation for the past year was devoted to the building up of the station. We have added an entomologist and zoologist to the staff, who is making a study of the insect and other pests. The former director was retained, and he is engaged in plant breeding and plant introduction work.

The principal lines of work that are being conducted are cultivation and fertilizer experiments with sugar cane, cotton, corn, and various forage crops, and some work has been done with coconuts. The agronomist is carrying on plant-breeding work in connection with the sugar cane and in addition to cultivation and fertilizer experiments, and has developed a variety of cane which he calls "S. C. 12/4," which is very productive and has a considerably higher sugar content than any variety that has been grown previously on the island. This he has distributed to the other plantations and has also sent some of it over to Porto Rico, where it is doing very well.

Mr. McLAUGHLIN of Michigan. Normally, what is the sugar content as compared with the crops in Cuba and Louisiana?

Dr. EVANS. The sugar content in the cane in St. Croix, as far as my information goes, is about the same as that in Cuba and a little higher than it is in Louisiana.

Mr. McLAUGHLIN of Michigan. Have you gone far enough with that to determine whether you can increase the sugar content?

Dr. EVANS. No. The sugar content of this cane is 2 or 3 per cent higher than the average of the cane cultivated in the Virgin Islands. Of course, this variety has not yet been established long enough to get in general cultivation, but it is grown on a considerable scale on one or two plantations, and the probabilities are that at the end of the present season there will be enough to plant several hundred acres.

Mr. McLAUGHLIN of Michigan. There is nothing to interfere with its being brought over to this country for use in other places?

Dr. EVANS. Not if adapted. I do not know whether it is adapted to Louisiana conditions or not. Of course, there is a Federal quarantine on all sugar cane at present, but for scientific purposes it can be brought in.

Mr. LEE. Do they have to plant the sugar cane every year down there?

Dr. EVANS. No; the cane is ratooned, and that is one of the problems we are working on. Where they ratooned the cane—that is, cut the cane down to the ground and let it sprout up again—if they follow that too long it becomes a question of the adjustment between the cost of replanting and the net profit.

Mr. LEE. In replanting, do they just lay the stalk in the row, or do they plant the seed?

Dr. EVANS. The stalk is generally cut in sections of about three or four joints, and these sections are planted in a row right down the field.

In addition to the cane breeding which I have just described, work is in progress with cotton, and there has been produced a very fine type of Sea Island cotton that has a long fine lint and gives a very good yield for that type of cotton. This cotton has been under

observation for several years in the Virgin Islands, and early last spring some of the seed was sent to the department and it was tried out last summer in connection with the work that the department is doing with the Egyptian type of cotton in Arizona. It proved to be a cotton requiring too long a season for that region; it did not mature, and they have taken some of the best plants, removed them to the greenhouses, and expect to keep them going this winter and will use them next year in some hybridization work. The gentleman in charge of the work for the department in Arizona told me there were some features in the cotton that looked very favorable to him and he wanted at least to run the thing far enough to see whether it could be adapted to Arizona conditions. It probably would not be adapted to the coast regions in South Carolina, Georgia, and Florida, for the reason that the rainfall in St. Croix is very low. There are no high mountains on the island and consequently the clouds pass by and the rainfall is very low, more comparable with the conditions in Arizona; so it is thought that that would be the best place to test the cotton out.

Mr. McLAUGHLIN of Michigan. Who is doing this work in Arizona?

Dr. EVANS. That is being done by the Bureau of Plant Industry in cooperation. Mr. Kearney has charge of that work.

Mr. McLAUGHLIN of Michigan. In cooperation with whom?

Dr. EVANS. It is regular Bureau of Plant Industry work. I furnished the seed and asked them to test it.

Mr. McLAUGHLIN of Michigan. It is cooperation with you?

Dr. EVANS. Yes, sir. Another line of work being carried on there is with corn. Corn furnishes one of the principal foods of the people of the Virgin Islands, and there is quite a lot of work going on in developing better varieties. While corn is generally supposed to have originated in the tropics, as a matter of fact there are not very many tropical varieties of corn that yield highly. The best varieties of corn are produced in regions considerably removed from the tropics, and work is now in progress to try by the ear-to-row selection to secure some variety of corn that will yield more highly. Dr. Smith has succeeded in getting one strain, which is grown to a considerable extent, that yields about double what is the average crop of the island. This corn used to be formerly ground in a mill at the station and sold to the people on the plantations, the laborers and others, and the sales from cornmeal were quite an appreciable item in the former maintenance of the station. He introduced, also, from Barbados a variety of sweet potato that has been extensively planted throughout all the Virgin Islands. It is much more prolific and has now practically supplanted all the varieties that were previously grown.

Mr. ANDERSON. How recently was that?

Dr. EVANS. That was brought over from Barbados about four years ago.

Mr. LEE. There is a Porto Rico sweet potato which is a very excellent potato.

Dr. EVANS. It is quite similar to the one grown in Barbados but not the same variety.

Mr. LEE. What is the yield per acre down there?

Dr. EVANS. I really could not say; I have no information on that. Incidentally, I will say that all the statistics that have been

collected from the Virgin Islands, until the census was taken a year and a half ago, were very, very vague and very indefinite.

The CHAIRMAN. Can you give the amount of revenue derived from the crop on the Virgin Islands?

Dr. EVANS. The appropriation for that station is \$15,000.

The CHAIRMAN. Do you sell the crop?

Dr. EVANS. That all goes into the Treasury.

The CHAIRMAN. How much is turned into the Treasury?

Dr. EVANS. I have not the exact figures, but for the period of the year from January 1 to July, it amounted to in the neighborhood of \$3,000, I think.

Mr. LEE. Your principal income would be between those months?

Dr. EVANS. No; the sugar income is later than that.

The CHAIRMAN. Can you approximate the amount that is turned into the Treasury as a result of these appropriations?

Dr. EVANS. From all of them?

The CHAIRMAN. Yes; from all of them.

Dr. EVANS. For the past year it amounted to \$4,727.56.

The CHAIRMAN. From all the stations?

Dr. EVANS. Yes; from all the stations.

Mr. McLAUGHLIN of Michigan. Are you doing anything there in the way of directly advising and assisting the people in agriculture; anything like extension work, I mean?

Dr. EVANS. That is one of the things we wish to take up under the increase we are asking for. We want to put on another man who shall be a trained horticulturist and who would probably make his headquarters on the island of St. Thomas. His business will be to carry on horticultural investigations and to travel around to other places in the principal islands, acting as a sort of a county agent in giving advice to the people, not only as to horticulture but as to the other matters pertaining to agriculture. We will want, also, a plant pathologist to study some of the diseases which are very prevalent and very troublesome.

Mr. McLAUGHLIN of Michigan. I thought you had a man like that; what did you call him?

Dr. EVANS. He is an entomologist; he is working on scale insects, the corn borer, and two or three grubs that occur in the soil and cause a great deal of loss to the sweet potato crop, and things of that kind. The entomologist is working on those problems.

Mr. ANDERSON. Are those bugs down there all new?

Dr. EVANS. They are not new, so far as I am acquainted with them, but there are problems in connection with their control that are new.

Mr. McLAUGHLIN of Michigan. Do you need a man for each of those lines of work?

Dr. EVANS. It is almost impossible to get a man trained both as an entomologist and pathologist these days. All the institutions have so narrowly specialized their men that you can hardly find a man now who is conversant with both subjects.

Mr. McLAUGHLIN of Michigan. Would it later be necessary for an expert in each line to go from the department to look over the work frequently?

Dr. EVANS. In the event we got a good man, if the department sends an expert, he will not have to go at the expense of the station but at the expense of the bureau. He will go more as an advising

visitor than as an investigator. The probabilities are that the plant pathologist would not be added to the station for some time, but rather a chemist who should take up some of the questions of chemistry in connection with fertilizing and cane-sugar manufacturing, which would be, perhaps, the more urgent just now. But we do want a man to act as agricultural advisor for all of the islands. Travel is rather difficult between the different islands, and with only two men on the staff of the station to look after the work, which is going on on 170 acres, you can not do very much in the way of traveling from place to place.

Mr. McLAUGHLIN of Michigan. Have you an estimate of the arable land in these islands?

Dr. EVANS. That is given in the census report. I do not have the figures with me.

Mr. McLAUGHLIN of Michigan. I have seen it but I have not the faintest idea what it is. Don't you recall it at all?

Dr. EVANS. It was given in the census report, but I do not recall how much the arable land amounts to.

Mr. ANDERSON. What is the population?

Dr. EVANS. About 17,000.

Mr. ANDERSON. That is, for all the islands?

Dr. EVANS. The three populated islands.

Mr. McLAUGHLIN of Michigan. Do you travel to all these outlying stations?

Dr. EVANS. From time to time; I try to visit them as often as I can.

Mr. McLAUGHLIN of Michigan. How often have you been able to do it?

Dr. EVANS. The last trip I made was three years ago when I went to the Hawaiian station.

We are asking for an increase for the Alaska station that I should like to discuss, if the committee desires to hear me on the matter.

The CHAIRMAN. How many people have you in Alaska?

Dr. EVANS. In the station work?

The CHAIRMAN. Yes. Can you give the number employed there by the department altogether?

Dr. EVANS. I do not know how many the Forest Service has, but we have 11 regularly employed; that is, commissioned employees.

The CHAIRMAN. How many stations have you?

Dr. EVANS. Five.

The CHAIRMAN. Scattered over the Territory?

Dr. EVANS. Scattered over the whole Territory. One is at Sitka, in southeastern Alaska; one at Fairbanks, in the Tanana River Valley; one at Rampart, in the Yukon Valley; one at Matanuska, in the Matanuska Valley, through which the new railroad is being built; and the fifth is at Kodiak.

The CHAIRMAN. You were stationed in Alaska at one time?

Dr. EVANS. I made two preliminary surveys of the Territory.

The CHAIRMAN. You are familiar with the country?

Dr. EVANS. Yes.

The CHAIRMAN. What can you tell us about the reindeer up there?

Dr. EVANS. The reindeer are mostly on the Seward Peninsula, in the vicinity and to the north of Nome, quite a distance from any of our experiment stations.

The CHAIRMAN. Is the industry prospering?

Dr. EVANS. Our department, of course, has nothing whatever to do with the reindeer industry. That comes under the Bureau of Education. The information I have is that they are prospering very materially.

The CHAIRMAN. It has been suggested that that work should be transferred to the Department of Agriculture—that it could be better taken care of by the Department of Agriculture than by the Bureau of Education. Would that be handled in connection with your work up there?

Dr. EVANS. I very much doubt it, as the nearest station we have is at least 600 miles from the reindeer country.

The CHAIRMAN. You would not have to have a station?

Dr. EVANS. It would necessitate the establishment of another station in order to do that.

The CHAIRMAN. Would it be necessary to have a station to take care of it?

Dr. EVANS. There would have to be some one there to direct it and take care of it.

Mr. HARRISON. I might say that Mr. Nelson has prepared a rather detailed letter for the information of the committee explaining the situation and indicating just what would be necessary.

The CHAIRMAN. My understanding was that Dr. Evans was familiar with the situation.

Dr. EVANS. I have never been in the reindeer country.

The CHAIRMAN. You have been through the country?

Dr. EVANS. I have been through the country to the east of that.

I would like for a few moments to explain the necessity for the increase we are asking for the work in Alaska. We are asking for \$15,000 for buildings. When we began work at Fairbanks in 1907 a man was sent up there and built a two-room log house from the spruce trees on the tract he cleared for beginning operations. Later he built another two rooms, bringing it up to the side of the original two and making that a four-room house. That was built in 1907 and 1908. The house was built of green spruce logs. Those have rotted now to such an extent that we need a new house. We have nothing there in the way of a dwelling except this original log house that was built by the first man we sent there.

Mr. ANDERSON. Where is this?

Dr. EVANS. At Fairbanks.

Mr. LEE. At what cost?

Dr. EVANS. The cost of the log house?

Mr. LEE. Yes.

Dr. EVANS. I could not tell, because it was built by the man who worked there when he was not doing anything else. In a similar way he built a barn. We now have about 90 acres under cultivation and have added another man to the staff, and it is necessary that this man should live in the house with the superintendent and his family. The superintendent's family has increased until now he has five children, and the superintendent is complaining very much about having to have another man in a four-room house with him. So we desire to have an appropriation to secure the material for another house and also material for a barn. It is explained in the note under item 41 that the appropriation will merely supply the material.

The house will be built, as in the past practically all of our buildings in Alaska have been built, by the regular people engaged in experimental work. It so happens that the men we have in connection with the station are very ingenious men and can perform carpenter work, cement work, or anything of the kind. What we want at the Fairbanks station is a new house to serve as an office and laboratory and also a dwelling for the superintendent. Then this former four-room log house will be fitted up and made habitable for the assistant. The same condition is true at Rampart, where we have but one house with no other place for anyone to live on that side of the river, as it is on the opposite side of the Yukon from the town of Rampart. In that case, also, the assistants have to live in the house with the superintendent.

At Kodiak we want to replace the old silos, built in 1907, by new concrete silos. It is estimated that about \$800 will be required for the material. The work will be done by the men during the season when they are not engaged on other work.

Mr. McLAUGHLIN of Michigan. How large are they?

Dr. EVANS. About 150-ton silos.

Mr. LEE. For the two?

Dr. EVANS. One hundred and fifty tons each. For the stock we have at Kodiak, it requires in the neighborhood of 250 tons of silage a year.

Mr. McLAUGHLIN of Michigan. Won't you have to hurry to build two silos of that capacity with \$800 in that locality? But you say the work is all supplied; I did not have that in mind.

Mr. LEE. It is rather cheap for the material.

Dr. EVANS. This estimate was made by Dr. Georgeson nearly a year ago, and I imagine cement has gone up with everything else and that it would be difficult for him, perhaps, to come within the estimate that he gave at that time.

Mr. McLAUGHLIN of Michigan. It could not be built in the city of Washington for that.

Dr. EVANS. No; I think not. But this is only for the material. Of course, the sand is to be had right there on the beach and the main expense will be the cost of the cement.

Mr. McLAUGHLIN of Michigan. A wood silo is just as good; could not you get the wood up there—lumber?

Dr. EVANS. No; all the lumber has to be shipped. There is not a mill anywhere near there. The nearest lumber supply is from Seattle and Puget Sound, and the silos we put up there, both of them, have very seriously decayed, so they probably won't last more than a year or two longer.

The CHAIRMAN. Is it not cold up there for a silo; would not a cement silo freeze up solidly?

Dr. EVANS. I do not think it would freeze any harder than a wooden silo. The weather on Kodiak Island is not so cold.

The CHAIRMAN. Is there anything else?

Dr. EVANS. Not unless there is some question about the work of the other insular stations.

The CHAIRMAN. The work is going along about as it has in the past and is making progress, I suppose?

Dr. EVANS. We are making decided progress. We have carried on some rather special features in connection with the work of the

different stations related to war activities, and the work in Hawaii, Porto Rico, and Guam has, in the main, continued about the same.

The CHAIRMAN. Are the people in Porto Rico prosperous?

Dr. EVANS. They seem to be; as far as exports of crops would indicate, they must be in a prosperous condition.

Mr. McLAUGHLIN of Michigan. We are told that the population of Alaska is getting smaller; that it was greatly reduced during the war.

Dr. EVANS. During the war it was quite materially reduced, I am informed, but there is beginning to be quite a large movement of people that way, if we can judge anything by the requests we are receiving from individuals regarding homesteads in Alaska. We get a great many inquiries, particularly from the returned soldiers. I have had a great many inquiries regarding homesteads in Alaska.

Mr. McLAUGHLIN of Michigan. Have you been able to inveigle any of them into going up there?

Dr. EVANS. I have sent them the information we have; I have given them any advice we have.

Mr. ANDERSON. I had several requests of that kind recently in regard to homesteads in Alaska. I suppose there are plenty of them there?

Dr. EVANS. There have, as a matter of fact, been 503 homesteads taken upon there in the last few years, embracing about 130,000 acres. A large portion of them are in newly developed regions along the railroad, contiguous to the Matanuska station, which is being developed very rapidly and very satisfactorily. The only thrashing machine in the Tanana Valley is owned by the Fairbanks station. In a recent report of the cooperative work in that region, it is stated that there had been thrashed in 1919 for farmers: Wheat, 1,000 bushels; oats, 2,037; and barley, 120, with probably 500 bushels of grain still unthrashed. The station crop of grain for 1919 was: Wheat, 300 bushels; oats, 775; and barley, 125.

Mr. McLAUGHLIN of Michigan. Are the men in charge of your stations up there and in your employ generally natives of Alaska, or did you have to take them from down below?

Dr. EVANS. The superintendents of all the stations have been brought from other regions. We generally want some one who has had training in an agricultural college and that you can not get in the average individual who has gone to Alaska. The others employed there are secured locally.

Mr. McLAUGHLIN of Michigan. How much are these superintendents paid?

Dr. EVANS. The superintendents are paid——

Mr. McLAUGHLIN of Michigan. I see you have one at \$3,720.

Dr. EVANS. That is an estimate for the one in charge. He has charge of all the stations.

Mr. McLAUGHLIN of Michigan. He is located up there?

Dr. EVANS. He is located at Sitka and travels around to the different places. His present salary is \$3,500. The superintendents who are in charge of stations at Fairbanks and Rampart get \$2,820. The one in charge at Kodiak gets \$2,500, and the one in charge at Matanuska gets \$2,280.

Mr. McLAUGHLIN of Michigan. Is that the list we find on page 222?

Dr. EVANS. That is taken from the list I prepared. You will find that in the second column, "expended in 1918." They are all called agents, to conform to the civil service regulation that we can not appoint, except as an agent, any one without an examination; so they are designated as agents. In the second column are given the number employed during 1919, and those estimated for 1921 are given in the first column, headed "estimated for 1921." It is expected that we will have to promote every one of these men. The cost of living in Alaska, like every place else, has gone up and the men are seriously complaining that they can not meet their living expenses with the salaries that they now have.

Mr. PURNELL. How does the cost of living in Alaska compare with the cost of living here?

Dr. EVANS. For most things, I would say it would cost very nearly what it does right here in Washington. For many things they have to pay much higher. For provisions, particularly in the interior, that have to be shipped there, in many lines, they are much higher than they are here, even.

Mr. LEE. Clothing would be higher, too?

Dr. EVANS. Clothing and general supplies like furniture would be higher. Furniture is very, very high there.

Mr. PURNELL. Furniture has to be shipped from here?

Dr. EVANS. It has to be shipped from the west coast, and, of course, the ocean and other freights add materially to the cost.

Mr. McLAUGHLIN of Michigan. I see at the Guam station you have two animal husbandmen in charge.

Dr. EVANS. That is merely a statement of the expenditures in 1919. We had one husbandman in charge. We will have one in charge in 1921, and it is proposed to pay him to \$3,000 instead of \$2,700. The column headed "expended, 1919," gives the number and designation and salary of the individuals employed in that year. In the column headed "estimated, 1921," it gives the number, designation, and proposed salaries for 1921.

Mr. McLAUGHLIN of Michigan. Guam is not a very large island, is it?

Dr. EVANS. Guam is not a large island, but if we are going to carry on work along the lines that have been inaugurated we will have to have five or six men to do the work. The animal husbandman has general charge of the station and also the animal husbandry work. The agronomist carries on all the field crop work and has general charge of the agricultural and horticultural work, with one assistant. Extension work was begun last March; it is being continued, and we plan continuing it just as it has been with a slight increase to the man in charge.

Mr. McLAUGHLIN of Michigan. Do you remember the area of the island?

Dr. EVANS. The area of Guam is about 250 square miles. There are nearly 20,000 people on the island and the population is increasing. The last figures indicated that the population was increasing, and it is the desire of the governor of the island, as well as others who have made a study of the situation, to get the people into agricultural pursuits again rather than to depend, as they did for a while, on working for the Navy Department. We have just shipped (the boat sailed last Monday) some additional live stock to Guam. We

sent two more Ayrshire bulls, some Berkshire pige, and an additional lot of poultry. We are having exceedingly good results with the live-stock introduction.

The extension work that was begun in Guam in March, 1919, is carried on through the station cooperating with the educational department and the island government, and the number of enrollments in boys' and girls' club work, which consists largely of corn and pig clubs, is 499. That was up to the end of June—practically 500 in four months. There has been organized school garden work in connection with the schools throughout the island, and 377 boys have engaged in this work. Since that time there have been in process of organization poultry clubs, in which the girls are taking quite an active interest.

MR. PURNELL. Do you know whether there is a shortage of teachers in the schools?

DR. EVANS. In Guam?

MR. PURNELL. Yes; or in Alaska; generally.

DR. EVANS. There is a shortage of teachers everywhere.

MR. PURNELL. I was wondering if there was any particular shortage there. The reason I ask the question (it is hardly in line with this) is that I have had a number of requests relative to information for positions in Alaska for school-teachers and I have not yet been able to get any information.

DR. EVANS. I do not know specifically about it, and I could not give you any information. The Bureau of Education has charge of the schools and could furnish you with the information.

MR. PURNELL. I have made no request of the Bureau of Education.

MR. LEE. What type of people have they in Guam?

DR. EVANS. The people in Guam are a somewhat composite race. They are probably of Malaysian origin, with a considerable Spanish mixture. It was a Spanish colony for several hundred years, and there is a large Spanish element of the population.

MR. LEE. Are there any well-to-do or wealthy people on the island?

DR. EVANS. There are really no rich people on the island and no very poor people. They have small areas where they carry on some of their planting work, and the men, to a large extent, work for the Navy Department in road building and things of that character. So there are neither any very rich people nor any very poor people. They did suffer very materially after the typhoon of July 6, 1918, when practically all the crops were destroyed. At that time the governor, acting through the experiment station, commandeered practically all the crops that were left on the island for seed purposes, and our station men went around and selected and took charge of everything in the way of a crop plant that looked as though it would mature enough to ripen its seed for planting purposes. They took charge of the seed, put it in large galvanized-iron containers, and kept it until the planting season, when it was planted. It happened that the best corn of the island was on the station. It was in some experimental work we were carrying on. The corn was needed to plant, and the governor commandeered the whole supply; and while it terminated a rather promising experiment, it enabled the people to have seed corn for planting in time to get it in before the next rainy season.

Mr. McLAUGHLIN of Michigan. What proportion of the total area of the island is devoted to agriculture?

Dr. EVANS. A very large proportion was formerly devoted to agriculture, but with the large demand for labor in building roads, the people gradually drifted away from their plantations and went to work on the roads. That condition became so serious that in 1908 the then Governor of Guam succeeded in interesting the Navy Department in securing, through the Secretary of Agriculture, an appropriation to investigate the subject of establishing a station and trying to see if it was possible to get the people back on their ranches. A station was established. A large number of improved crops have been introduced and are being widely disseminated; the live stock in the island is being gradually improved; and the general condition of the island, as reflected by the information from the station men and from the governor's report, is that the condition of the people has in 10 years very materially improved.

Mr. PURNELL. What is the population of the island?

Dr. EVANS. It is about 20,000. During the last few years it seems to be increasing rather than decreasing. There was a time that the population was decreasing.

Mr. PURNELL. What is the total area?

Dr. EVANS. About 250 square miles.

Mr. LEE. What is the rainfall?

Dr. EVANS. It varies. At the particular point where our station is located it is nearly 100 inches a year.

Mr. McLAUGHLIN of Michigan. The total area of the island is only about six townships. It would look to me as though the work of the Government was carried on there at considerable expense.

Dr. EVANS. There is nothing comparable to the work that is being done in that region. They are isolated, and if you are going to carry on any work it would be rather an expensive thing. It is expensive to carry on experimental work anywhere, and if you are going to have it carried on in an isolated region like that it will require a considerable provision.

Mr. McLAUGHLIN of Michigan. I see you are employing 25 men; that is the entire roll?

Dr. EVANS. That is the laborers' roll, the day laborers.

Mr. McLAUGHLIN of Michigan. Oh, no; that includes all of them.

Dr. EVANS. It is altogether, but it includes 20 day laborers.

Mr. McLAUGHLIN of Michigan. Yes, all together. There is an animal husbandman, an agronomist, and extension agents.

Dr. EVANS. There are 5 of what might be called scientific men and about 20 laborers. We have, where the main station is located, about 60 acres of land, a large portion of which is under cultivation. In addition to that we have, in another part of the island where we are trying to develop the live-stock industry, about 1,700 acres. It was bought from an estate some years ago at an almost nominal figure. I think it was only \$2,000, and when it was surveyed we found we had considerably more than we thought we were buying.

In connection with both those places it will take about 20 laborers to keep the work going.

Mr. LEE. Have they grazing the year around?

Dr. EVANS. Yes; there is a marked dry season in Guam and grazing during that season is very, very poor. One of the first things

we did was to introduce some forage plants, and the plants we have introduced have very materially improved the grazing possibilities of the island. The natives are very anxious to get those grasses we have for distribution to put out on their ranches.

Mr. McLAUGHLIN of Michigan. Besides the men employed there, these experts, our experience is that we have to have somebody to go out and look after each one, and then for each one of the employees in the field it takes several in the department to look after their work, and so on. It looks to me as though that is a pretty expensive proposition.

Dr. EVANS. I do not know of anyone having been sent from the department to Guam since I went there in 1908 to look over the situation and establish the station. The cost of their administration in Washington is very small.

The CHAIRMAN. Thank you, Dr. Evans.

AFTER RECESS.

The committee met pursuant to recess, Hon. Gilbert N. Haugen (chairman) presiding.

STATEMENT OF DR. A. C. TRUE, DIRECTOR OF THE STATES RELATIONS SERVICE, DEPARTMENT OF AGRICULTURE—Continued.

The CHAIRMAN. We will take up the next item.

Dr. TRUE. The only other item is No. 43, on page 225, for the general administrative expenses connected with the States Relations Service as a whole, including the office of the director, the chief clerk, the officers in charge of publications, library, accounts, records, supplies, and property and for miscellaneous expenses incident thereto.

The CHAIRMAN. You are asking for an increase there?

Dr. TRUE. We are asking for an increase there of \$10,000 in all. This item is intended to provide for the general expenses of the service as a whole, which ought not to be met from other items. The expense of that work, which includes such things as salaries of general administrative officers, stationery, traveling expenses, equipment, and material for the general use of the service, telephone and telegraph service, and things of that sort, has materially increased necessarily. It is just another matter in which the high cost of living figures. The present appropriation is inadequate to provide for the things that ought to properly come under an item of this kind.

The CHAIRMAN. This covers the administration of all the activities of the bureau?

Dr. TRUE. Yes, sir; this covers the general activities of the bureau.

Mr. ANDERSON. Is this an administrative proposition?

Dr. TRUE. Yes, sir.

Mr. ANDERSON. I notice in your statement of persons employed under that item you have an agricultural physicist and five or six scientific assistants. I supposed this was an administrative and not a scientific proposition.

Dr. TRUE. You will notice that those people are employed on part time. From our point of view, that is the most economical arrangement. Take the first man there: He is in charge of all the editorial work of the service. At the same time, he participates in the inspec-

tion of the experiment station work and in the preparation of the Experiment Station Records. That is an arrangement we have had for a long time. That secures for us the employment of a high-grade man to look after the matters relating to our publications; at the same time we have his services for part of the time, and have had for the last 25 years, in connection with the work that we do for the stations.

Mr. ANDERSON. He has enough work of that kind so that it is reasonable to keep him employed on the lump-sum roll?

Dr. TRUE. Oh, yes; he is a scientific employee and the work he has to do requires such a person. He has to be responsible for the accuracy of our publications from the general point of view of the service; he has to be sure that the publications are right and in proper form for the printer. A similar arrangement is made for several other employees who are scientific assistants.

The CHAIRMAN. What is the salary limit of the clerks?

Dr. TRUE. Any clerk?

The CHAIRMAN. Is there any other limit than the \$4,500?

Mr. HARRISON. There is no other limit than the \$4,500, Mr. Chairman.

Dr. TRUE. But, as a matter of fact, we do not pay the clerks anything like that.

Mr. ANDERSON. You take them in through the Civil Service Commission under circumstances whereby their salaries are fixed; do you not?

Mr. HARRISON. To a certain extent; but there is no limitation upon their promotion up through the various grades. A clerk may come in at \$1,200 and may be promoted through the various clerical grades, for instance, to the position of chief clerk of a bureau.

The CHAIRMAN. You suggest one here at \$2,400.

Dr. TRUE. That is the highest one we have.

The CHAIRMAN. What does he do?

Dr. TRUE. He is the chief accountant.

The CHAIRMAN. What does the chief accountant do?

Dr. TRUE. Takes care of all our accounts.

The CHAIRMAN. In your bureau?

Dr. TRUE. Yes, sir; in our bureau. Our chief clerk is getting only \$2,000, which, in my judgment, is a very inadequate salary for the services performed.

The CHAIRMAN. Is that all, Doctor?

Dr. TRUE. Yes, sir. I have had prepared, Mr. Chairman, a brief table which shows the amounts allotted to each of our projects, with an indication of the increase or decrease. I think that might be useful to the committee, and I will submit it as part of the record.

The CHAIRMAN. You will also furnish the other tables that have been requested?

Dr. TRUE. Yes, sir.

The CHAIRMAN. Thank you very much, Dr. True.

(The table showing activities of the States Relations Service under lump-fund items follows, the other statistical matter referred to being incorporated in the discussion under item 37, "for farmers' cooperative demonstrations outside of the cotton belt":)

Activities under lump-fund items, States Relations Service.

Project.	Allotment, 1920.	Estimate, 1921.	Increase.	Decrease.
Relations with agricultural colleges and experiment stations:				
(a) Colleges (administration of extension act):.....	\$31,100	\$39,600	\$8,500	.....
(b) State experiment stations (administration of Hatch and Adams Acts).....	36,400	37,900	1,500	.....
(c) Supervision of insular stations.....	2,100	2,100		.....
	69,600	79,600	10,000	.....
Farmers' cooperative demonstrations outside of the cotton belt:				
(a) Supervision.....	57,300	56,220		\$1,080
(b) County agent work.....	353,000	353,000		
(c) Boys' and girls' club work.....	142,006	142,006		
(d) Home demonstration work.....	138,215	138,215		
(e) Farm management demonstration work.....	46,500	46,500		
(f) Extension specialists.....	14,280	14,280		
	751,280	750,200		1,080
Farmers' cooperative demonstrations in the cotton belt:				
(a) Supervision.....	42,040	42,040		
(b) County agent work.....	357,763	357,763		
(c) Boys' club work.....	34,629	34,629		
(d) Home demonstration work.....	210,608	210,608		
	645,040	645,040		
Farmers' institutes and agricultural schools:				
(a) Farmers' institutes.....	5,000	5,000		
(b) Agricultural schools.....	15,600	14,400		\$1,200
	20,600	19,400		1,200
Insular experiment stations:				
(a) Alaska.....	75,000	90,000	15,000	
(b) Hawaii.....	50,000	50,000		
(c) Porto Rico.....	50,000	50,000		
(d) Guam.....	25,000	20,000		5,000
(e) Virgin Islands.....	15,000	20,000	5,000	
	215,000	230,000	20,000	5,000
Home Economics investigations:				
(a) Respiration calorimeter investigations.....	15,000	20,720	5,720	
(b) Studies of food, clothing, and household equipment and management.....	31,280	55,560	24,280	
	46,280	76,280	30,000	
General bureau administration.....	14,180	24,180	10,000	
Total.....	1,761,980	1,824,700	62,720	

¹ Includes \$3,100 transferred to statutory roll.

² Due to transfer of 1 fireman, at \$1,080, to statutory roll of the Secretary's office.

³ Includes \$34,480 transferred to statutory roll.

⁴ Includes \$10,240 transferred to statutory roll.

⁵ Due to transfer of 1 clerk of class 1 to statutory roll of the Division of Publications.

⁶ Includes \$3,040 transferred to statutory roll.

⁷ Includes \$1,980 transferred to statutory roll.

⁸ Includes \$1,580 transferred to statutory roll.

AFTERNOON SESSION.

MONDAY, JANUARY 12, 1920.

The committee reassembled at 2.10 o'clock p. m., pursuant to recess, Hon. Gilbert N. Haugen (chairman) presiding.

The CHAIRMAN. The committee will come to order. The members of the executive committee of the National Land Grant College Association desire to appear before the committee to discuss, I believe, certain matters in connection with the extension work, increased appropriations for research work at the State experiment station

under the Adams-Hatch Act, and other matters. It is suggested that we hear the committee the first thing to-morrow morning.

Mr. HARRISON. It is the executive committee representing all the land-grant colleges.

Mr. RUBEY. We had better hear them, I think.

The CHAIRMAN. Without objection, we will hear the committee at 10 o'clock to-morrow morning.

COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Tuesday, January 13, 1920.

The committee met at 10 o'clock a. m., Hon. Gilbert N. Haugen (chairman) presiding.

The CHAIRMAN. We have with us this morning members of the executive committee of the National Land Grant College Association, composed of representatives of a number of agricultural colleges. We will be glad to hear you first, Dr. Pearson.

STATEMENT OF DR. B. A. PEARSON, PRESIDENT OF THE IOWA STATE COLLEGE OF AGRICULTURE AND MECHANIC ARTS, AMES, IOWA.

Dr. PEARSON. The committee asked me to present the matter to you briefly, and then I think it might be well to have the different members of the executive committee supplement my statement.

The CHAIRMAN. We will be glad to have you proceed, Dr. Pearson.

Dr. PEARSON. The committee, Mr. Chairman, that has come here this morning is the executive committee of the National Land Grant College Association. There are five members of the committee here, with our secretary, making six. The committee membership includes President W. E. Stone, of Purdue University; President W. M. Riggs, of Clemson College, S. C.; Dean H. L. Russell, of the College of Agriculture at Madison, Wis.; Dean A. R. Mann, of the College of Agriculture at Cornell University, N. Y.; and myself, president of the Iowa State College of Agriculture and Mechanic Arts; and our secretary is Dr. J. L. Hills, dean of the College of Agriculture, Burlington, Vt.

I want to say, first, that we appreciate the privilege that you have given us of coming here and talking with you for a little while about some matters in which we are deeply interested, and we know that you are interested as well.

We conceive that we appreciate the difficulty that confronts all of the congressional committees this year, particularly in reference to appropriations, and we have not come here with the idea of trying to force anything, even though we thought it were possible, through the committee or through the Congress. We have come here with the idea of presenting to you gentlemen some facts which are constantly coming to our attention in the progress of our work—facts which we think will interest you—and we are confident that when you have these facts, with the countless facts coming to you from other sources, your final judgment in the matter will be right.

We are, of course, interested in all phases of agriculture. The land-grant colleges are all teaching agriculture. They are carrying on experimental work, and they are conducting the extension work; but I will not attempt this morning to cover more than a very few points which we would like to emphasize particularly.

EUROPEAN CORN BORER.

In a preliminary way, let me say that yesterday we conferred with the Secretary of Agriculture for the purpose of learning something of his plans in reference to combating the corn borer which has recently established itself in this country. A great deal of alarm is being felt, throughout the corn belt particularly, Mr. Chairman, and I am sure you are as well posted as I am in reference to the possible dangers of this pest. The corn borer has recently become established in Massachusetts, more recently in New York, and still more recently, we are told, in Pennsylvania. Nobody knows in just how many parts of the country it is now established. Thus far it has not done extreme damage to field corn, because apparently it has not been restricted to any section where only field corn is grown. It prefers to work on sweet corn, and, if sweet corn is in the vicinity, I am told that it particularly concentrates its attention on that crop instead of the field corn, although it does not neglect the field corn. We know something about what some pests do when they find themselves free from their natural enemies, and the natural enemies of the corn borer seem to be conspicuous by their absence. Some of the most practical entomologists I know are very much alarmed about the possibilities of this insect in the field corn districts in Indiana, Illinois, Iowa, Kansas, and other States with a crop running high in the billions of dollars in value, and we can realize the loss that would result from even a small percentage of damage by this insect.

Mr. Chairman, we would like to have you know that we are very earnestly interested in that subject and very hopeful that Congress will see its way clear to appropriate from half a million to a million dollars, making some or all of it available immediately, so that before the next crop season begins arrangements for the study of the corn borer may be started. We need to know, first of all, where it is, and, secondly, we need to do some experimental work upon methods of control. That kind of information is fundamental. If you should appropriate a hundred million dollars to-day for this work, of course the men who are best informed would be at a loss as to how to use the money; but they do need a small amount with which to devise ways and means to take care of this pest, which now threatens to become very serious.

The CHAIRMAN. In what States has the corn borer been located?

Dr. PEARSON. It is in Pennsylvania, New York, and Massachusetts. I have been told that it is only recently in Pennsylvania.

The CHAIRMAN. Has it also been located in Illinois?

Dr. PEARSON. No; only in New York, Massachusetts, and Pennsylvania, so far as we know.

FARM MANAGEMENT AND CROP ESTIMATES.

Of all the very many items which the Secretary of Agriculture is bringing to you, there are two others that I want to refer to very briefly, and those are the items relating to the Office of Farm Management and the work of the Bureau of Crop Estimates. If these subjects have already been presented to you, I ought not to take the time to dwell upon them, because I would probably only repeat what you have already heard; but I do want to say to you that our committee and the colleges that we represent feel that one of the most backward developments in agriculture at this time is that relating to the business of agriculture, the question of costs, and the whole line of subjects related to that question. The Secretary of Agriculture, after a great deal of difficulty, has devised a plan which promises fine results, and if he can secure the financial support to put that into effect we are satisfied that it will be very beneficial to agriculture.

Then, again, the development of the work of the Bureau of Crop Estimates is a matter in which farmers everywhere are tremendously concerned. You, of course, well know that farmers now decide on what they shall plant merely by the way they happen to feel, by how things were in their own locality last year, and how prices are at the moment, with very little else to guide them; and it frequently has happened that the farmers in one section of the country, quite ignorant of the developments in another section, have gone forward and produced a crop and then found, to their great disappointment, that they had been anticipated somewhere else, with the result that they have made little or nothing on their crop. If the Bureau of Crop Estimates can give us a good estimate of acreage and of available supplies at any one point in the country on a given date, and in time for action, it will enable the farmers of the country to plan their work in a very much more definite and constructive way.

RESEARCH WORK.

But the two points, Mr. Chairman, that we are particularly anxious to take up with you are the questions of research and extension. I took the liberty of writing you in behalf of the executive committee a few days ago with reference to the work in agricultural research, not knowing that I would have this opportunity of appearing before your committee so soon. Of course, every member of this committee knows that this work is supported now in every State of the Union by Federal appropriations provided by the Hatch Act and the Adams Act, each State receiving \$15,000 per year under each of these acts, making \$30,000 for each State experiment station. When the Adams Act was passed, as is frequently the custom, they provided for a small appropriation the first year, then a slight increase, and another slight increase the next year, until finally it reached its maximum. The maximum was reached many years ago, but since that time the changes in costs affecting the work of the experiment stations have served practically the same as a reduction in the appropriation by nearly 50 per cent would have served if that had occurred five or six days ago, before this great increase of prices

came upon us. It is costing about 50 per cent more than it did six years ago to maintain our help in the experiment stations. We can not do better than that. Commercial enterprises everywhere are looking for the kind of men who are employed in the experiment station work. These men are on work relating to practical problems. In our own station in Iowa we have lost in the last six weeks three men, who have accepted employment elsewhere at an average salary increase of about \$1,000 a year. One of them went to a big mail-order house in Chicago, to become their fertilizer expert.

The cost of laboratory materials—acids and alkalis and reagents of all kinds and classes—has gone up and up until now it is from two to six times what it was before the war.

The result is that experiment station research is being slowed down. We are appealing to our men to stand by their work and to be loyal to the institutions, and we are accomplishing a great deal, in rather a temporary way, in that manner. We could name dozens of men who could leave their experiment station work tomorrow at such increases in salary as I have mentioned—\$1,000 or more a year—but they are interested in their work and are confidently hoping that conditions will change. They would rather do that work than do something else. If it were not for their loyalty, Mr. Chairman, I think I can say truthfully that the experiment station work of the country would have collapsed by this time.

What is the result? The result is that the natural run of problems is continuing; we are getting new problems in agriculture requiring investigation every year (it seems as though they come every month), and we are not able to keep up with them.

These new problems come with the years of settlement of a country. When a country has been settled 20 years it will not have as many serious problems requiring search in agriculture as it will have when it has been settled 30 or 40 or 50 years. The longer the soil is in use the more the chemical composition of the soil is changing, the more its bacteriological flora is changing, and the more problems there are arising in reference to crop production. The same is true in reference to animals and in reference to disease and other handicaps that have to be overcome. Then, too, there are new lines of investigation coming up, and the result is that it has not been possible to keep up with the lines of progress.

The very strength of agriculture, in this Nation or any other nation, is the research which is being carried on constantly in every State in the Union, in every typical agricultural section, with a view to recognize as promptly as possible the new problems that have arisen, or are about to arise, and to tackle them before they became too serious.

I referred to the corn borer. Some of our experiment stations right now are not in shape to do what they ought to do, and what the farmers of the State say they want them to do, in relation to that problem; and I could go right down through the list of fungous diseases and so on until you might become tired of listening.

The CHAIRMAN. Has a remedy been found for the corn borer?

Dr. PEARSON. No; that is a phase of the problem that must be studied. We must find some remedy for the corn borer. Whether we will be able to control it through the use of some natural enemy,

or parasite, or through some treatment of the soil no one now knows, but experiments ought to be started in various parts of the country under various conditions, with all the methods which may be suggested, so that we may determine which one will be the most effective.

We do not want to mention to you, Mr. Chairman, a definite amount for the support of the research work of the State stations. Your wisdom will arrive at that better than we could do it. But we would like to emphasize the fact that the cost of maintaining our agricultural experiment station work in the last six years has increased from 75 to 100 per cent. The Federal Government is now providing \$30,000 annually for each State for this work, so that, in our judgment, it is merely a matter of computation to determine the amount which would offset these increased costs.

Mr. TINCHER. Since you do not belong to any one of the departments here in Washington, perhaps it would be appropriate for you to suggest to the committee, should we agree with you that this appropriation ought to be doubled, how we could economize in some other line, in view of the fact, as we have been advised, that we are not going to have income enough next year to run the Government, even if no increases at all are made in the appropriations. We might ask you to suggest to us what expense we could lop off.

Dr. PEARSON. I wish I could do that. If I were more familiar with the countless items going through the hands of these committees I would feel more free to attempt it. I do feel, however, that if the many items which you are working on could be weighed on their merits, you would agree with us that this is one of the most important.

Mr. TINCHER. I do; but the proposition is how to get the money.

EXTENSION WORK.

Dr. PEARSON. Now, gentlemen, a few words in conclusion with reference to extension work, and after I have finished speaking I hope some of the members of the executive committee will supplement what I have said with points which I might have overlooked.

You all know of the very comprehensive program for agricultural extension work which was adopted by Congress, the development of which has been started throughout the whole country in cooperation between the Department of Agriculture and the State agricultural colleges. This work has not been fully developed. The original plans were to have it reach all the agricultural districts of the country and to enable people in agriculture everywhere to get to a reasonable extent the advantages which they might wish to secure from the experiment stations and from the colleges. It has been referred to as the most comprehensive step ever taken in popular education, and I believe that is a correct characterization of it.

This work has been growing rapidly, and it has become immensely popular with the farmers of the country. No better proof of that needs to be furnished than the tremendously rapid organization of farm bureau, and then, in turn, State organizations, and recently a Federal organization for the express purpose of cooperating along these lines and furthering the work of the extension staff.

The extension work, Mr. Chairman, has been interfered with in its development because of the increased "cost of living," the same as has the investigational work; but, realizing the immediate importance of extension work, Congress provided special emergency appropriations to overcome these increased costs and even to more than overcome them, so that during the war we developed the extension work much more rapidly than had been the original plan under the Smith-Lever Act. In some States every county was organized with a farm bureau, with a county agent, and even with a home-demonstration agent, and with suitable and very effective work with boys' and girls' clubs.

We would like to leave with you this special suggestion, that the United States Government could not appropriate money more effectively to combat the high cost of living than would be done through the extension work.

Farmers themselves are not so greatly interested in increasing agricultural production; we all know that. Increases of agricultural crops frequently mean nothing but more work for the farmer—not a larger income. We could give you any quantity of figures to show how it has paid the farmer in total income to have a smaller crop, because he got a much higher price per unit for it.

When the war was on there was pressure for more food, and when the call went out from Washington, from the President, to the whole country to produce more food, the extension people, backed by the Department of Agriculture here and the colleges in every State, supported loyally by the farm bureaus, got into the work, with the result, as you know, that the number of bushels of food crops was increased by more than 1,000,000,000 in one year over the average five-year production immediately preceding. That was a piece of work in which the extension agencies played a very important part. I do not know where we would have been if it had not been for that food. I think that wheat, instead of being \$2.50 a bushel, would more likely have been \$7 or \$8 a bushel, and potatoes would have been \$5 or \$6 a bushel.

Mr. JONES. What will they have to produce in order to bring the cost down to where a man can afford to buy them?

Dr. PEARSON. Potatoes?

Mr. JONES. Any of these farm products.

Dr. PEARSON. They will have to produce enough so that we will be able to have a sufficient quantity to feed ourselves and to take care of some of these people in other countries who are absolutely starving and who are urgently appealing to us for a little help. When hogs were worth 5 cents a pound and wheat was worth 50 cents a bushel we then had enough to feed ourselves, and more than enough, and that was why the price was so low. Ever since those years, 20 or 25 years ago, the amount of food produced has been decreasing rapidly in proportion to the number of mouths to be fed, and the result is that the prices have gone higher and higher.

Mr. JONES. But you say that during the war the farmers responded to the call to increase production and that they produced far more than they could use; and yet the cost went up.

Dr. PEARSON. It would have gone very much higher if they had not produced as much as they did.

Mr. JONES. Probably so.

Dr. PEARSON. But our exports absorbed a great part of that increase. The farmers of the country are now confronted with a great difficulty. The agricultural emergency is not past, by any means, with the signing of the armistice. I do not need to emphasize that point. The farmers have difficulties along labor lines. They have the high cost of their supplies to meet and they have exceedingly great difficulty in getting their stuff to market. Gentlemen, you all know that the farmers are very much discouraged on account of these things, and the reports are at this moment to the effect that they are decreasing their production in various parts of the country. Whether they are doing that thoughtfully or thoughtlessly, I do not know. The fact is that food production in the United States is decreasing. If food production is going to decrease very much, the Lord help us on the high cost of living.

Mr. JONES. What is your answer; what is your remedy for that?

Dr. PEARSON. The answer is a great increase in production.

Mr. JONES. I understand that that is the desideratum, but how would you bring about an increased production?

Dr. PEARSON. The very best and most effective way to increase production is to maintain on a strong basis the extension work in the Nation which I am now discussing. It was the extension work more than anything else that secured the volume of production during the war.

Mr. JONES. Will your extension work decrease the cost of producing?

Dr. PEARSON. Yes.

Mr. JONES. Will labor work for less if the extension work is extended?

Dr. PEARSON. The decrease in the cost per unit will decrease the labor cost. Of course, there is an endless circle there.

Mr. JONES. Of course.

Dr. PEARSON. If we can produce more food, and if the prices of food fall, we hope that the prices of labor will fall, and that will come back and affect the prices of food and other supplies. But I repeat that there is not one way by which the United States Government could take a more effective step toward reducing the cost of living than by maintaining extension work on a strong basis.

Mr. YOUNG. I would like to ask a question on that cost-of-living proposition. I do not know whether you mean to convey this impression or not, but the impression that I have gotten from what you have said is that you wish to have cheaper prices for production on the farm so that the cost of living can be reduced. I am from a great agricultural State, and I know something about agricultural conditions in that State. As I see it, the people in my section of the country are leaving the farms for better opportunities of making money in the towns and cities. They are going from Texas away to Detroit, Mich., to work in automobile-manufacturing establishments, because a boy can make more money there than he can on the farm.

I venture to say that that condition is true all over the United States, in every section of the agricultural belt. What has happened back on the farm is that the farmer has been compelled to raise his wage scale in order to hold labor to cultivate those farms, and he has reached the point in his labor scale when the laborer can not earn the wage that the farmer is forced to pay. If you were to give him everything he could produce on some of our farms at the present

wage scale, the resulting crops would not pay the labor charges. The farmer can not compete with those industries, and the result is that people are leaving the farms; and men with their families are working just as much of their land as they can work. That is true in my section of the country.

Dr. PEARSON. It is not true there alone.

Mr. YOUNG. Then if you hold out to the farmer the statement that we are going to reduce the cost of living, and have that apply to the farmer's crops, he is going to be a still worse discouraged man than he is now. That is the way that I see it, representing an agricultural constituency.

Then, in turn, the cost of living comes back on us as farmers. We are paying probably two and a half times as much for a farm wagon as we formerly paid. We are paying three and a half or four times as much for shoes as we formerly paid. All along the line the actual necessities that the farmer must have in a farming section to produce these crops, the high labor scales and conditions in these other sections, are reflected back to us. I do not see how you can ever hold out any hope that the cost of living to the people is going to be lowered by reducing the price of farm products when we have got this circle in which everything the agricultural section needs must be paid for at multiplied prices.

Dr. PEARSON. In the first place, I would like to state the case perhaps a little more clearly. In my judgment, the best way to meet the high cost of living problem is by maintaining the extension work. I am not actually sure that we are going to decrease the cost of potatoes or wheat per bushel for some time to come.

Mr. YOUNG. Do you think it would be wise to even suggest that we hope ultimately to ever get back to conditions where wheat is going to be worth 50 cents a bushel and cotton 5 cents a pound?

Dr. PEARSON. Decidedly not.

Mr. YOUNG. If wheat is going to 50 cents a bushel again, I am going to quit farming. I do not want anything more of that in mine.

Dr. PEARSON. I hope I have not said anything from which it could be inferred that I wanted that. The actual reduction is going to come very largely, if at all, through improved methods which reduce the cost of producing the unit. It is going to come through substituting a better strain of seed which will increase the number of bushels per acre and without increase of labor; it will result through increases of that kind which come about through educational effort. I do not think we are going to see cheap food in this country for a long time to come, if we ever see it again; but I think we are going to see food a whole lot more expensive than it is now unless reasonable steps are taken to check that tendency. I do not know whether I have answered your thought. I am very glad that you spoke as you did.

Mr. PURNELL. May I suggest another thought right along that line? I do not know whether your department is doing anything with it, or contemplating anything, but 4,000,000 men went out of the homes of America, many of them from the farms, into concentration camps, where they had the friendly association with their fellows.

Keeping in mind the necessity of morale on the farm as well as in the Army, I know, representing as I do an agricultural district, that there is an increased feeling among those returned soldiers who formerly were on the farms that they have lost that companionship and association, and that they want more than ever to concentrate in the cities and to get away from the farms to where they will have the bright lights, and music, and the association of their friends. Does your department contemplate any campaign of education or any organized effort to make those boys satisfied rather than dissatisfied with the farm?

Dr. PEARSON. Yes, sir; the extension service is doing a great deal along that line. It is the most effective agency for meeting the situation along that line. The efforts of the extension forces are directed to making farm work more profitable, and therefore more interesting.

Mr. PURNELL. It seems to me that we are going to have to think more of some form of community entertainment, or something. I am not familiar enough with it to know what it shall take, but I know from actual experience, having gone back into my district, of hundreds that I found here, there, and yonder who have come home and seen the folks and stayed a few days and have become dissatisfied and have gone back to the East or to Chicago, Detroit, or some other cities, looking for work. The principal reason for this exodus was not so much the question of salary (which is a great factor, of course), but the desire to hunt up again the old friendships and associations, find the crowd, rather than to become isolated on the farm, with its drudgery.

Dr. PEARSON. Yes; you have brought up another one of the factors that the thinking farmers who are anxious to keep up food production to the requirements of the United States have to contend with.

Mr. PURNELL. I think that is one of the greatest problems we have to deal with now.

Dr. PEARSON. Yes.

Mr. PURNELL. It is one of the greatest things standing in the way of the progress of the country.

Dr. PEARSON. It is, and there is no influence that is combating that more than the extension work.

Mr. McLAUGHLIN of Michigan. You think that this extension work will help to increase the production of farm products generally, do you not?

Dr. PEARSON. I do; and we need some increase; but, still more important, it will help to decrease the cost.

Mr. McLAUGHLIN of Michigan. What do you think of the suggestion from some in high places to the effect that there should be a smaller production of wheat next year?

Dr. PEARSON. Do you mean a smaller production than the maximum war-time production?

Mr. McLAUGHLIN of Michigan. That is, producing less this year than we did last year; and that the farmers should reduce their acreage?

Dr. PEARSON. Without doubt, it would be safe to reduce the acreage of wheat to some extent from what we were planting in war time. We were then figuring on sending enormous quantities of wheat to

the Allies. Of course, they will not now need that to the extent that they did, and some reduction in the wheat acreage should be expected, I think. But, looking upon the whole subject of food production as one subject, I think we can say that food production needs to be generally maintained—always with the reservation that peculiar conditions exist in different parts of the country which will have to be dealt with there by the people who are confronted by them.

When the war was on we were asking people to put in wheat regardless of whether it would ever pay them or not, and lots of them did it. We asked farmers to turn over their fine pastures. The chairman knows how valiantly they did it in his section, and I presume every member of the committee who comes from a rural section knows how they did it in his section of the country. We were asking for production almost regardless of cost at that time. Naturally, such a request will not be made now.

Mr. McLAUGHLIN of Michigan. Is that entirely true, that we were asking for production of wheat regardless of the cost of production, inasmuch as there was a guaranteed price for all the wheat that the farmers could produce?

Dr. PEARSON. Yes; because, although there was a guaranteed price on wheat, there were other crops that could have been raised on the same land which would have given better returns to the farmers, but they willingly gave up that better return to raise the wheat, just because the Government asked them to do so.

Mr. Chairman, I will detain you only a few minutes more. The purposes of the Smith-Lever Act have not been accomplished. We have not a county agent in every agricultural county in the United States. A great deal of work remains to be done. If we look at the map to-day showing the present status of extension work, we will find that the map is badly spotted. It seems as though it would be a hardship to some counties that want the county agent to be told that they can not have one because there are not funds enough. The cost of the county agents and the cost of living have gone up to such an extent that the original Smith-Lever appropriations, which were provided with our eyes open and with very generous thought for the future, even as supplemented by the items in the bill, are not sufficient to provide a county agent in every county.

Mr. McLAUGHLIN of Michigan. Are you familiar with the methods of expending the extension funds, and do you know what proportion is used for administration?

Dr. PEARSON. Yes, sir, I think I am.

Mr. McLAUGHLIN of Michigan. Do you think that that portion of the money is properly spent, and do you agree with the criticism of some that too much is spent for administration?

Dr. PEARSON. Mr. McLaughlin, we have almost sweat blood on that question in my State. The director of extension in our State reports directly to me, and I have spent a great many hours with him in going over that matter. I know something of the methods in other States, and, honestly, I do not see how the proportion of the money spend for administration purposes could be materially reduced and yet maintain our extension work on a high standard.

We had a little difficulty in a corner of our own State (pardon me for referring to our State so often, but it happens to be the territory

that I know best), when the Hessian fly got in. The county agent was absolutely lost. He did not know what to do for the Hessian fly except in a very general way. He knew more than the farmers knew. But there were more than a \$1,000,000 worth of crops imperiled, and he wanted expert help so he sent to the college, and the wires were hardly fast enough to get his message up there. He wanted an expert to come down there. If that county agent had been sufficiently well informed to deal with that problem himself, he would not have been a county agent; he would have been an entomologist drawing a pretty good salary somewhere else, because that kind of man is altogether too hard to find. We sent an expert to that part of the county, and he was more than welcomed. He spent a few days there, made his inspection, and gave his advice—gave the county agent some outstanding points that he would need in order to handle the problem on some other farm—and returned home.

I find that the farmers are very anxious to meet specialists nowadays. They like to talk to a man who can tell them about protein and phosphorus and about fungous disease; and farmers generally know what those things mean. When the problem becomes acute they want this specialist to come in. Oftentimes the county agent is comparable with the local doctor. In a general way he knows how to treat agricultural problems, and he handles those matters very well; but the moment some special difficulty arises he wants special expert help and information up to the very latest date, if possible.

Mr. TINCER. On the subject of the Hessian fly, was there any thing in the world that that expert could do on the ground there that he could not have written the county agent to do?

Dr. PEARSON. Yes; he spent several days making special investigations; he advised that some fields be plowed up so as to get rid of the fly, and in other cases that the crop be taken off of it before the fields were plowed up. But he could not advise the county agent by letter.

Mr. TINCER. What time of the year was it that he advised that the crop be plowed up for Hessian fly?

Dr. PEARSON. I do not know. The wheat was not very large. It was, of course, early in the spring.

Mr. TINCER. They found the fly in it early in the spring?

Dr. PEARSON. They knew that it was there.

Mr. TINCER. From the year before?

Dr. PEARSON. Yes; of course.

Mr. TINCER. But they could not find the fly at that time of the year?

Dr. PEARSON. No.

Mr. TINCER. Any ordinary farm man may have had experience with the Hessian fly, and I just wondered what the expert could do by going there that he could not accomplish by writing.

Dr. PEARSON. Kansas farmers are mighty nearly experts on the Hessian fly.

Mr. TINCER. That is the reason I wondered what an expert could do on the ground that he could not do by writing.

Dr. PEARSON. Farmers are so familiar with that problem that they know a great deal about it without realizing that they know a great deal about it.

Mr. TINCHER. There is not a thing that they can do to help a crop that the fly is in, is there?

Dr. PEARSON. No, sir.

Mr. TINCHER. There is no way of determining, either, whether the fly is in the crop until it is headed out, and whether it will pay to plow it up or not? There is only one treatment to eradicate the fly, and that, it seems to me, could have been imparted in a letter to the county agent.

Dr. PEARSON. And yet, the advice of the county agent was not to plow up their fields without the advice of the expert.

Mr. TINCHER. His guess was practically as good as that of anybody else. That was the spring of the year, and the wheat had not headed out?

Dr. PEARSON. I do not know when that was. The wheat was in such form that he could form some judgment about it.

Mr. TINCHER. The experts say that the only treatment is to wait until after the eggs of the fly are hatched and then sow the wheat. That will eradicate the fly—if they wait until late enough in the fall to sow the wheat.

Dr. PEARSON. The purpose of the agent there, of course, was to prevent further spreading, so as to not get further infection.

Mr. RUBEX. Suppose your agent had written a letter to this county agent and set out in that letter the things that it was necessary to do; is it not possible that the farmers whose wheat was affected would have said, "Yes; we called on the Government for help, and instead of sending a man down here to help us they sent us a letter"? And would not that at once have put the Agricultural Department in a bad light with those farmers and with the county agent and with the people who were expecting help from the Government?

Dr. PEARSON. Yes; they would have been very much disappointed. As I said, the wires were not fast enough to bring the message to us asking us to send help.

Mr. Chairman, the Smith-Lever bill when originally written and passed by Congress would have provided for the development of extension work throughout the whole United States. Conditions have very radically changed since that time, and I suppose we must answer the question as to whether we want to carry out the intention of that measure which obtained at the time Congress passed it or whether we now feel that our plans should be modified on account of increased cost for doing everything. If we intend to carry it out, of course, additional funds will be necessary to enable us to do so. In going over these appropriations I notice that Congress provided very liberally for supplementing the extension act while the war was on. The appropriations for last year—the emergency appropriations—amounted to \$6,100,000. The corresponding appropriation for this year is \$1,500,000. We have cut off 75 per cent of the funds available for this most important work to agriculture, when the problem itself has hardly been reduced at all.

Mr. McLAUGHLIN of Michigan. I do not understand how you reach that 75 per cent.

Dr. PEARSON. The emergency appropriation for extension work available a year ago was \$6,100,000.

Mr. McLAUGHLIN of Michigan. Oh, yes; I understand.

Dr. PEARSON. For the present year it is \$1,500,000. That is a very severe cut on an industry which is so fundamental and so important.

The CHAIRMAN. There is also an increment under the Lever Act of \$500,000 to be added.

Dr. PEARSON. I do not count that, Mr. Chairman, because that is used merely to carry out the very carefully worked out plan of Congress of several years ago. That merely accomplishes its purpose, and it ought not to be counted in these emergency funds.

The CHAIRMAN. Last year we appropriated in the regular appropriation bill \$751,280 and \$645,040, and \$1,500,000, or \$2,896,320 in addition to the \$3,080,000 under the Lever bill.

Dr. PEARSON. Yes.

The CHAIRMAN. This year the estimates are the same, but there will be an increase of \$500,000 under the Lever Act. This will give over \$5,000 to each of the 2,000 counties.

Dr. PEARSON. Yes; it is a large amount of money, to be sure; still, we find here and there a county which is not provided with this work and can not be under the funds that are now in sight. We wonder if it would be wise to stop our developments when they are only partially accomplished.

The CHAIRMAN. I believe this is very important work, and it has been so considered by the members of the committee, but the condition of the Treasury must be taken into consideration.

Dr. PEARSON. Yes. Summing up, then, I will say merely that the benefit of the extension work to the farmer comes in showing him how to produce his crops more cheaply, and to the public it is a great benefit, because it is the best way of meeting the high cost of living problem. The cost of living is going up and not down. We want to encourage the farmer to keep up his production now rather than to have him discouraged and let it decrease too much. I thank you, Mr. Chairman.

The CHAIRMAN. We are very grateful to you, Dr. Pearson.

Dr. PEARSON. Will you hear President Stone, of Purdue University?

The CHAIRMAN. We will be glad to hear him.

STATEMENT OF DR. W. E. STONE, PRESIDENT OF PURDUE UNIVERSITY, LA FAYETTE, IND.

EXTENSION WORK.

Dr. STONE. I would like to say just a few words in a general way on this proposition. The remarks of members of the committee indicate that you gentlemen are quite sensible of the situation, and I can not give you very much information on that; but is it not true that we all realize that conditions are pretty bad in the world at this time? There is scarcity of food, there is unrest, dissatisfaction, and discontent, and the world apparently looks to this country for some assistance and relief.

What are we going to do? It is very true that the burdens on our people are very great and the problems before us are many, but we

have got to face those problems and do the best we can to get some results to improve these conditions. It may be that those results come from lessening taxes; it may be that they come from increasing expenditures; that is quite possible. If a man is sick with an acute disease, his first thought is to remedy that disease and not to count the cost.

I believe that improvement of agricultural conditions and the production of food are fundamental things in this country which are going to help relieve this situation. They are not going to be a cure-all for everything. There is no one thing that is going to relieve the condition. But, wherever we can see the way to help in this, it is our duty to do it.

We, gentlemen, do not come here seeking appropriations for ourselves. We have a certain responsibility at home, to our communities, with regard to carrying on this work of helping improve agricultural conditions. You gentlemen, too, have some responsibility in that connection, and we have come up here to talk this thing over and to try to get a better viewpoint of the whole situation. Whatever helps the farmer to meet his problems, which consist of a scarcity of labor, the high cost of all of his supplies, and some other discouragements that he has had to meet, helps in the direction of what we desire. The farmer is apt to feel these days that it is not worth while to push very hard. He is willing to dig in on his farm and do his best to make a living, but as to helping feed the United States, helping to feed the world, and all that kind of thing that he was asked to do during the war, I think he is less interested now than he was. He ought to be more interested, because, in my judgment, the problem is just as acute to-day as it was a year or two ago. People are starving in the world; people are discontented right here in our own country; and there is nothing that will help a man who is unhappy and discontented more than a full stomach and satisfied hunger, and it is the farmer's job to supply these needs.

The purpose of this extension work is to try to educate the farmer to better methods and to improve the conditions of his life so that his children are not going to leave home, if it is possible to do that. That is one of the purposes—trying to increase the production of food. It is a hard job. I do not know that we are going to be able to help very much, but wherever there is any prospect of helping on this problem I think it is our duty to try that, and stick to it.

The means at our disposal for doing this work are less to-day than they were last year, even though we have the same amount of money to do it with. You know how it is in your own families. The costs mount up for everything that is used in this enterprise, and the men that we depend upon to do the work are being drawn off into better-paid positions, so that it is a very difficult thing to maintain an organization with which to do this work at this time. If we have the same amount of money available to meet the expenses of this work this year, we shall hardly be able to do as much or as good work as we did last year. That is the condition, gentlemen, in which we face the effort to help along in the solution of these world problems. The situation is perfectly evident to all of you. There is no argument more convincing than a knowledge of the facts.

So we come here to bring to you our testimony and to ask you to consider the situation and not to withhold funds from us, because

that means that the work will suffer. Help us, if you can, to strengthen this work and to make it more effective and more far-reaching—that we may have more results. That is the problem. You know how much money can be spent for this, and whatever you give us we will take it and do our best with it. That is our duty, and we are alive to that. But we feel very earnestly that this work is fundamental in helping to solve some of these very puzzling problems before us. We want to do our part, and we hope you will help us to do it.

Mr. McLAUGHLIN of Michigan. You spoke of the trouble with labor. What is the trouble?

Dr. STONE. Farm labor is very high priced. Farm labor is not very abundant. I suppose that same condition prevails elsewhere.

The CHAIRMAN. What are the average wages on the farm now?

Dr. STONE. I saw the statement the other day that the farm hand was expecting from \$60 to \$75 a month.

The CHAIRMAN. And board and lodging?

Dr. STONE. Yes, sir. It may be that the farmer can pay that and make a profit, but he is unaccustomed to doing that. He does not think quickly. He prefers, perhaps, to farm less and hedge in on his enterprise.

The CHAIRMAN. It is also a problem to get the labor?

Dr. STONE. Yes; that is the large problem—to get any labor at all. Take it in specialized industries like the dairy industry, where you require intelligent labor to cooperate in the work; the work can not be done by machinery; it must be done by hand. The condition in our State is that it is almost impossible to get dairy help at all.

Mr. YOUNG. Is not this one reason for the difference in the viewpoint of the farmer—that he must be a successful business man in order to be a farmer? The manufacturer, say, of cotton goods, of course has a highly organized body of men to transact his business. He knows his market. Under his system of business he places his contracts to furnish this, that, and the other jobber with certain supplies. Under his system of organization his product is, in a way, already placed and he knows what he is going to get for it. So he adjusts his labor scale and his overhead charges to meet his contracts and can see his profits—

Dr. PEARSON. Absolutely.

Mr. YOUNG (continuing). Before the stuff is actually produced. That is their system of business. The farmer, on the other hand, is confronted with the problem of betting against the season and the insects, and his turnover comes only once a year, so that, when he figures at the beginning of the season this year on planting so much wheat, naturally he is alarmed at these high wages because he does not know what his wheat is going to bring him when it is produced and put on the market several months afterwards; and it is the same way with every other farm product. You speak of \$60 or \$70 a month being paid for farm labor. Down in my country, where the general crop is cotton, the tremendous expense comes in the picking. The cotton has to be picked by hand. Formerly we paid 50 cents a hundred pounds for picking. I am at this date paying \$3.50 a hundred to try to save the little remnants of cotton. That is what the farmer is up against everywhere.

Dr. STONE. Yes.

Mr. YOUNG. How are you going to meet those kind of conditions? If the farmer goes ahead and plants all his acreage, and he meets this high labor scale, if he overproduces he pays eternally by not getting anything for what he produces. We are up against that very kind of problem.

Dr. STONE. Yes; that is true. There seems to be almost unsolvable problems.

Mr. YOUNG. They are very alarming.

Dr. STONE. And that seems to make it very much more necessary that we exert every effort to meet these conditions in the best way we can. If we know that a thing is worth doing and is sound in principle, that is the thing that we ought to be doing. We really face these emergencies, and we must take into account the result which we want to attain, and that is to get the conditions in the life of our people stabilized and sane and safe again. A part of that problem is to feed people; that is the farmer's job, and we want to help him if we can, just now.

The CHAIRMAN. We are very much obliged to you, Dr. Stone.

May I ask you, Dr. Pearson, what the situation is in our State as to farm labor?

Dr. PEARSON. In general, there is a little shortage. Wages, of course, are high—\$75 to \$80 a month in some parts of the State.

The CHAIRMAN. Board and lodging in addition?

Dr. PEARSON. Yes, sir.

Mr. McLAUGHLIN of Michigan. Dr. Pearson, have you thought of the effect on agriculture of this extensive road-building program that is provided for and may be carried out? Congress appropriated \$200,000,000 last year. A portion of that will be available this year. Many of the States have made very large appropriations and projects are being put up to the Department of Agriculture and to the State highway departments. There is evidence that some of the contracts are very, very high. Material is put in at an immense price and labor is provided for at a very high price. It would seem as though some of those in authority feel that they have to approve these contracts, regardless of the prices, because the money is there and must be expended. A great deal of labor will be necessary. Where is it to come from? In the cities and towns labor is paid satisfactorily, and it would be difficult to induce labor from those places to take up this road-building work. The only labor that is loose and can be induced to leave its present employment is that on the farms.

Dr. PEARSON. I suppose it is a question whether the drawbacks which the farmers will suffer, from that point you mention, would exceed the benefits that they would enjoy in having the roads available for their use. By good roads they are greatly benefited in their farm operations and marketing and in their feeling toward country life. Certainly, the points that you have mentioned are great disadvantages. I am sorry that I can not answer on that point more perfectly.

Mr. McLAUGHLIN of Michigan. Do you agree with the idea advanced by some that Government improvements in general should not be undertaken in times of high prices and abundant opportunities for profitable employment of the people, but that they should be undertaken only during slack times and in order to furnish employment for the people?

Dr. PEARSON. I think that is a fine theory. I would dislike, however, to see it carried out to the limit. I believe we have suffered now by holding back some of our Government improvements for too long a time.

Mr. McLAUGHLIN of Michigan. Some of the people whom I have heard express themselves looked with a good deal of fear on the present situation, on the ground that some of these Government contracts are practically fixing the prices very high for a great many commodities and that the labor to be employed must come from the farms, farms which can not afford to lose their labor.

Mr. HEFLIN. I was going to point out in that connection that in some of the States they employ convicts to work on the roads.

Mr. McLAUGHLIN of Michigan. I know they do that in some States but not in many of them, I think.

The CHAIRMAN. Dr. Pearson, are there any others whom you wish to be heard?

Dr. PEARSON. I suggest we hear from Dean Russell, of Madison, Wis.

The CHAIRMAN. We will be very glad to hear Dean Russell.

STATEMENT OF DR. H. L. RUSSELL, DEAN OF THE COLLEGE OF AGRICULTURE, UNIVERSITY OF WISCONSIN, MADISON, WIS.

EXTENSION WORK.

Dr. RUSSELL. Mr. Purnell spoke about a matter that I think is worthy of attention, and that is the question of dissatisfaction on the farms. He says that the soldier boys in his district are not going back to the farms. Primarily, the reason for that is that until very recently the farm has not been profitable enough to induce them to go back. They have got in their minds the prewar conditions rather than those which obtained during the war. We are not going to have much improvement in rural conditions, so far as I can see, until, first of all, the farm is made profitable for the farmer. Then we are going to have improvement in these social conditions. It is true that the extension service is very materially improving the social relations by the organization of farmers' clubs and the organization of these boys' and girls' clubs.

I think that one of the best pieces of work that the United States has ever fostered has been the aiding of the boys and girls to get them in touch with the economic problems of the farm. I went down into our stock division the other day and saw the baby beef show that was pulled off by the boys' and girls' clubs. There were 85 fat animals that had been fed by those youngsters, and I talked with those youngsters and with their fathers and with some of those who had come to the agricultural college and had gotten interested in the work of the agricultural college. I found that those boys had been imbued with the spirit and love of farm life through the medium of having a calf, for instance, for a year. That interested them in a way in which nothing else would have interested them. You can not take a youngster of that age and in an abstract way talk to him about the desirability of life on a farm; but, if you can point out to him that he can make some money—that

he can become a man (and every boy wants to ape his father) — he realizes that if he can get into something where he has a man's job it is worth while. And so the interest on the part of these youngsters relative to farm life was a revelation to me. Every year, when we have been having these contests, that is the type of work that has been fostered and developed. That is the type of work through which these Smith-Lever funds have been variously expended. That work is largely along the lines of home extension. This work is something that is going to become of the greatest importance for years to come. It is going to change the attitude of the youths of the Nation with reference to farm practices, because it is going to direct their attention along these economic lines; and, as many a father told me in regard to his boy, "This thing has kept my boy on the farm. He is going to stay on the farm."

After that the lure of the Great White Way has no attraction for that boy at all. He has gotten hold of the economic aspect. He is helping his father, and the work of the farm is not simply a round of drudgery out of which he gets nothing. I want to emphasize this extension work as being one of the most fruitful things that the Nation has yet backed up.

The question was raised here, I think by Mr. Young, with regard to the possibility of overproduction and the possibility of lowering the price. It does not take very many per cent over and above consumption in order to have a surplus which will reduce the price of food. Generally speaking, the margin between production and consumption is measured by less than 10 per cent. How is that margin going to be raised? It is going to be raised not by growing more acres. Mr. McLaughlin spoke about the question of the acreage of wheat. It would be a mistake, gentlemen, for our farmers to grow as many acres of wheat this year as they grew last year, for the reason that under the extraordinary stimulation of prices by the guaranteed minimum, and under the urge of patriotism, acres were put into wheat last year and the year before which were unprofitable. Why extend the acreage of wheat where the rainfall is only 8 or 10 inches? Manifestly, the handicap there is so great that even at \$5 a bushel you could not make a profit. In many places in Montana they did not get their seed back.

The Government put \$1,000,000 into the purchase of seed for the farmers. It went in as a part of our war game. It would not be thought of under peace-time conditions. Also, under peace conditions, the thing is going to come back to where we can grow these crops with a fair degree of safety.

I think it was you, Mr. Young, who spoke about the advantage which the manufacturer has as compared with the farmer; the certainties of the one as against the uncertainties of the other. That is a thing which we have always to keep in mind. The farmer can not tell anything about what the opportunities are going to be for him to sell his crop at a profit at the end of the harvest, as the manufacturer of shoes, for instance, can be sure of the price at which he is to sell his shoes. The manufacturer of shoes buys his leather and makes it up, and he knows beforehand what his prices are going to be—just what he is going to do about selling those shoes. We know that we have to pay higher for shoes because of the high price of leather.

How about the farmer? He can not tell until he gets his crop in what he is going to be able to get for it, and a difference in supply of 5 per cent below consumption means a high price on account of shortage; and a difference of 5 per cent above consumption—that is, if production is 5 per cent over the amount of consumption—means that there is a surplus, an excess, and the demand is not so great under those conditions and the price goes down.

RESEARCH WORK.

I want to say just a word or two in regard to this experiment station work, because I feel that the experiment station is in the most hazardous condition of any of our agricultural institutions. Every agricultural college is full of students at the present time. The rebound has been simply tremendous with regard to agricultural education since the war is over, and there is a heavier and heavier burden being put on the agricultural college to take care of its students. The extension work is popular. I am frank to say that that does not need a Moses half as much as the experiment station does, because the people themselves are going to attend to that. The people themselves are going to appeal to you to support the extension work, because they are the direct recipients of that work; but the experiment station work is a type of work for which there is no popular Moses.

There has got to be somebody on the job watching the development of the research work, because, gentlemen, sooner or later we will not have much to extend if we do not continue the work of the experiment stations; and the conditions under which the experiment station now labors are so much more difficult than they have been that that is the thing which it seems to me ought to commend itself to your most careful consideration.

I just want to give you an illustration: Three or four years ago one of our men working on animal nutrition discovered a condition in milk and eggs which showed that there was something in milk and in eggs—something in those two substances, particularly—that was able to stimulate the growth of animal life in a way that meats or other products did not do. Therefore, the chemist had told us that there were in certain kinds of foods so much of each of the different elements of nutrition, in this so much protein, and in that so much of carbohydrates, and so forth; and that was all there was to it. In other words, it was claimed that you could feed an animal in that way on the basis of a test tube. This discovery showed that you could not do that; that there were particularly stimulating substances in eggs and milk (called vitamins, to give them a name) that were not contained in other products. First he found them in eggs, and then he found them in milk; and it was perfectly natural to say, because of that, that the Lord put them there, because those are the substances that are designed by nature to nourish a life at its very beginning—animal life on the milk and bird life in the other case.

They extended that and found out that upon certain plants these vitamins were present. It was found particularly in the leafy portions of plants. That is one reason why the Italian gets along without butter. It is because he eats so much salad. He eats the

leafy portions of vegetables and salad plants, and that supplies to him these vitamins. Cows eat great quantities of the green, leafy portions of plants which we can not eat, concentrates it in her body, and gives it to us in the shape of milk. The fundamental discoveries can only be made by a long series of experimental work. That sort of work requires weeks of study and experimentation.

We have another lead along that line. Accidental discovery was made of the fact that there was something in yellow corn essentially different from white corn. The old farmer always thought that there was something about yellow corn that made it better than white corn; but if you analyze them chemically you can not find any difference at all. One of our men, however, following up these experiments on rats, fed a batch of rats on white corn, and, lo and behold, they did not do the way they ought to have done according to the formula. So he said, "What the dickens is the matter with them? I have tried this a number of times, and this is the first time this thing has worked out this way." He scratched his head, and finally said, "I wonder if it is possible that yellow corn has something in it different from what is in the white corn."

Then he took one batch of rats and fed them on white corn and another batch and fed them on yellow corn, and the ones that were fed on yellow corn went on and developed, while the others did not. He was on a new lead. What caused that? He argued that it was something associated with the coloring matter in plants (because this yellow in the corn is nothing but a pigment). He followed up that lead. Next he tried rutabagas and carrots. Carrots are rich in these vitamins. Rutabagas are not. Carrots are full of color and rutabagas are not. Now, if you went into the laboratory at an experiment station and you saw those rats there, you would probably say, "What kind of a fool business is this? They had better spend their time in the fields than fool around with white rats in the house here." But the work must be done under those conditions in order to get at the facts.

Having found out that there was something in these pigmented substances that was different, having found out that they contained these vitamins, it is easily possible to transfer that on to higher types of life. Six weeks ago we started a bunch of pigs on an experimental feeding test, and at the present time the pigs that are being fed with yellow corn are doing much better than the pigs that are being fed with white corn.

Experimental work of that kind can not be done in a day. It often requires years of continuous effort along one little line. In addition to the \$30,000 which the Federal Government gives us annually for experimental work, the State of Wisconsin is putting up \$125,000 for this purpose. Under existing conditions the cost of every one of these operations is practically double what it was under prewar conditions. The result is that we have been obliged, perforce, to curtail our experimental work simply because of the fact that we can not stretch a dollar and make it cover as much as we could in 1914. If we are compelled to drop these lines of work we will lose entirely the effect that should flow from them and lose that which the extension service is taking out into the field to disseminate to the farmers; because the object of all this research

work is to discover the laws of nature and to so control and hedge about existing conditions that the practical results can be taken to the farmer and applied by him on his own farm. That is the reason we have to go to support this experimental work. If the \$30,000 which was given by the Government, which started this work in 48 States, is inadequate under present conditions to properly support the work, it ought to be possible to increase those funds.

I believe that the suggestion which has been made, that any increment to that should be met by equivalent amounts from the States along the lines of the Smith-Lever Act and along the principle developed in the Smith-Hughes Act, would be wise, because I do not believe it should be the policy of the Federal Government to throw money into the States and say: "Take this money and spend it if you can, but do not match it with a dollar." But if you say to the State when you put down one dollar that if the State will put down another dollar alongside of it it may spend both dollars, then you put it up to the States, on their own earnest conviction, whether they want to support that work or not; and if the Federal Government will make a liberal provision for the work of the agricultural experiment stations under the Hatch and Adams Acts, with the requirement that the States must supply a dollar for every dollar you give, I believe that would be one of the wisest and most beneficial ventures that could be carried out by the Government.

Mr. McLAUGHLIN of Michigan. With regard to the extension work, the situation appears to be that there is not money enough to supply each county with a county agent, whereas in some of the counties—many of them in the aggregate—there is a county agent, a man, a woman for the home demonstration work, somebody to organize boys' clubs, and somebody to organize girls' clubs. Do you think it advisable to spend the money for these four Federal agents in some of the counties, that is, to so use up the money that the other counties can not even get a county agent?

Dr. RUSSELL. I do not know how generally true that is. I can only speak for my own State, and that is not the case in a single county in Wisconsin. So far as this boys' and girls' club work is concerned, we have furnished a man who organizes the counties and have asked the counties to carry their own burdens, so far as local factors are concerned in the counties. The college supplies what you might call the pedagogic oversight of the organization. I would say to the county representatives, "Gentlemen, if you want a county agent, or a woman agent for the home demonstration work, or a boys' agent and a girls' agent, you can only get them when you go down into your own jeans and furnish a large part of the cash to carry out the project." If the county met that sort of a proposition, then, certainly, it ought to receive careful consideration on the part of the college. But I think it should be contingent, in large measure, upon the county itself furnishing the major part of the support. We have no such cases as you mention, Mr. McLaughlin. The most that we have got is where we have a county agent and a woman agent. The woman agent concerns herself with the farm home and not with the farm, and that, of course, is one of the factors which is of very, very great importance in this question of general dissatisfaction which obtains under rural conditions. Why is it that the wife is so quickly responsive to a suggestion to leave the farm and go to town when she

gets along in years? It is simply because she has been a drudge for so long; simply because the farm barn is supplied with water, while she is lugging water from the well.

Facilities for labor-saving devices obtain in the barn, but do not in the home. The function of the home demonstration agent is to see that there is introduced into the farm home these labor-saving devices. That means quite as much working on the man to get him to open up the pocketbook as it does working with the woman.

Mr. McLAUGHLIN of Michigan. I think there is no difference of opinion as to the value of these different lines of work. I simply wanted your opinion as to the advisability of using that money for those extra lines of work, as you call them, in many of the counties, while at the same time other counties do not even have an agricultural agent.

Dr. RUSSELL. In some places the demand for county agents would not be so sharp and keen. In Wisconsin we have two or three counties that are substantially mining counties, which devote comparatively so little attention to farming that the agricultural possibilities are very small for a county agent. Milwaukee, an urban county, would not have a county agent. I should put that upon the ground that, where the people themselves were willing to support the work, and asked for it, the State authorities, in conjunction with the States Relations Service here, ought to decide where the money can be most wisely used.

Mr. McKINLEY. What proportions do the State and county pay for those agents?

Dr. RUSSELL. With us, we are having the county pay \$1,500 per county unit. The budget runs up from \$1,200 to \$2,000, but it averages around \$1,500. When the county makes its contribution, the State automatically appropriates another \$1,000. The amount we get from Federal sources enables us to put in from \$600 to \$800 extra. We must bear in mind, too—

Mr. McKINLEY. Is the Federal proportion only about one-fourth?

Dr. RUSSELL. About one-fourth, I should say, in our case, at the present time. That percentage is growing smaller rather than larger because the number of counties is growing more rapidly than the funds grow, and hence the funds have got to be spread out over a larger part of the State.

Mr. McLAUGHLIN of Michigan. You spoke of the large attendance at the agricultural colleges now. Does that represent a desire or intention of the young people to engage in agriculture after leaving the college?

Dr. RUSSELL. I think the percentage of our graduates who go into practical forms of agriculture is steadily growing right along.

Mr. McLAUGHLIN of Michigan. That is a little inconsistent, is it not, with the statements we have been hearing as to the desire and intention of the young people to leave the farms.

Dr. RUSSELL. Yes and no. The boy who can see the chance for the kind of life he wants to live on the farm is likely to stay. The boy wants to leave the farm because he does not see anything in it. You take the breeders—the sons of the breeders—and those boys do not leave the farm. The son is following in the footsteps of the father. It is the farm on which the life has been drudgery, where it has been brawn rather than brains that has been used, that they

want to leave. The boy wants to get off that kind of a farm, and I do not blame him. It is true that it might have been the boy's fault more than anything else. More likely, however, it is the father's fault for not bringing up the boy in the right way. If the father who is a farmer would give his boy a calf or a pig or something else to rear and give him the product of it when he sold it—not take it away from him—and so give him an incentive for doing these things, you would not find the boy wanting to leave. The upper stratum of the farmers find out that you must give boys an interest in things. If you do not get a boy interested in things you can not educate him. You can educate him through this economic sense quicker than in any other way, so far as my experience goes.

Mr. McLAUGHLIN of Michigan. I may over-estimate the difficulty that we may experience on that road-building proposition to which I referred awhile ago. What do you think of it?

Dr. RUSSELL. I do not think you do. I think it is a very serious problem. I have already taken it up with our State highway commission, and they are going to take the attitude that they are not going to spend this money just because we have got it. We have the Federal appropriation, and the States are supplementing that with an equal amount, but we are not going to let these contracts at a price per unit that is abnormally high. It is true that, in the main, the labor used on those contracts is of a type that does not come from the farms. It is the so-called rough labor that is gotten out of the cities. In the more remote regions, and on small contracts, they will draw some labor from the farms. The evidence for Wisconsin shows that there are 14,000 laborers at the maximum and the highway commission says that they are not going ahead and lay out these funds under these high costs. They will simply do a part of the road building and let the rest go over. I do not understand that the money reverts, does it, if it is not used up? Anyhow, the counties are going ahead with bond issues, and they voted a program running for six or eight years; and for the State of Wisconsin, if they were to carry out their maximum program, it means 14,000 laborers to go on the road work.

Mr. McLAUGHLIN of Michigan. And you think those will not largely come from the farms?

Dr. RUSSELL. Not in my own State.

The CHAIRMAN. Those engaged in teaming will largely come from the farms?

Dr. RUSSELL. Yes; and for every team of that sort we have to have three or four other men that are working at the shovel.

Mr. YOUNG. Of course, where you have a condition such as we have in my State, where the population is almost wholly agricultural, that labor will come from the farms.

Dr. RUSSELL. Yes; but in Wisconsin we have the cities, and there we get this flow of transient labor on all of that contract type of work. We built our cantonments with the same type of labor.

Mr. TINCHER. If this money is left available, some of the States will use it and some will take the broader view and try to economize.

Dr. RUSSELL. You are referring to the road work?

Mr. TINCHER. Yes. It would take some action on the part of Congress to equalize the work, at any rate.

Dr. RUSSELL. I should suppose that the Bureau of Public Roads would give due attention to problems of that sort; they will doubtless see that that money is not wasted; because, the Lord knows, we have not got any money to waste, even in these days.

Mr. TINCHER. There is no place where a man who wants to build a home or a barn can pay a dollar a barrel for cement if the road contractors are paying \$2.70 a barrel for it, is there?

Dr. RUSSELL. Cement has not gone up since last year. We are not paying substantially more than we did a year ago.

Mr. TINCHER. What is the price?

Dr. RUSSELL. I do not know the price, but I was told that by builders.

Mr. MCKINLEY. Cement now sells for \$3 a barrel, whereas six years ago it used to be about a dollar.

Dr. RUSSELL. Oh, yes; but I mean recently. Of course, it will undoubtedly cost more, but the question involved in the road-building program resolves itself into what that means in lowering the cost of distribution; and that is the thing that has got to be weighed, and is being weighed, by the State highway commission.

Mr. McLAUGHLIN of Michigan. It seems to me that the policy pursued in Wisconsin, as you have stated it, is the proper policy—not to approve the contract merely because you have the money, where prices may be outrageous. Do you know whether that policy has been suggested to the Department of Agriculture?

Dr. RUSSELL. No; I do not; but I would presume that the department would be conversant with the facts: Mr. MacDonald, who is in charge of the Bureau of Public Roads, is a thoroughly competent business man, as I understand, and from my contact with him I do not think he is going to let problems like that slip by him. But that is where, naturally, it ought to be done; the actual controlling factor will be the Department of Agriculture.

The CHAIRMAN. Are the counties first supplied with an agent?

Dr. RUSSELL. Generally speaking, yes; because there is more demand for the county agent than there is for the other types of work.

The CHAIRMAN. And a woman home worker?

Dr. RUSSELL. Yes; on account of local pressure in the county, which you must take into consideration. If the county wants this it must go down into its own pocket and tax itself for it.

The CHAIRMAN. It is left to the county?

Dr. RUSSELL. Yes; it is left to the county.

The CHAIRMAN. Do you exercise any discretion in the matter?

Dr. RUSSELL. It is left to the discretion of the county; and then we appoint the man. The appointment has to be viséd by the Board of Regents of the college. That is not left entirely to the county.

The CHAIRMAN. It is left to the county to choose whether they desire an agent or the experts?

Dr. RUSSELL. Do you mean by the experts those men with headquarters at the college?

The CHAIRMAN. Yes.

Dr. RUSSELL. A considerable amount is used for experts. I do not know that the overhead would be in that. I know in our own case that we have three men who are supervising 45 county agents; that is, 1 to 15. I do not regard that as a high overhead. In fact, I

think we are undermanned rather than overmanned, so far as executive oversight is concerned.

Of our Smith-Lever money which we are getting from Congress, we are using, I should say, roughly, from 65 to 75 per cent in the counties themselves, the other 25 per cent being used for specialists at the college and overhead expenses. The overhead for those 45 men would consist of 3 men. For the boys and girls we have one man and for the home demonstration we have one. With the department specialists who are backing up these county agents and working with them, we have perhaps a dozen, but not more than 25 per cent of the entire amount would be used for executive overhead and the specialists at the college.

Mr. TINCHER. How much do you get per county from the Government that you expend?

Dr. RUSSELL. We do not get so much a county at all. We get a lump appropriation of so much.

Mr. TINCHER. What does that figure out to the county, where you have the agents?

Dr. RUSSELL. We have \$80,000 in the State of Wisconsin, and we have 71 counties. Fifty of those counties have county agents.

Mr. TINCHER. That would be \$1,500 to a county?

Dr. RUSSELL. Yes; including salary and expenses.

Mr. TINCHER. What do we appropriate for a county?

The CHAIRMAN. On an average, over \$4,000 to a county last year.

Mr. TINCHER. Outside of your business expenses, you say you get about \$800 to a county?

Dr. RUSSELL. I would have to make an analysis of the figures to get the proportion. I see what you are trying to get. Your idea is that on the average each county gets \$4,000 of Federal money.

The CHAIRMAN. Yes; if distributed in that proportion it would average that.

Dr. RUSSELL. I expect that the representative of the States Relations Service could state how much of that actually goes into the respective counties, how much into the State overhead, and how much is spent here in Washington. I have never figured that.

The CHAIRMAN. How much is expended for the county agent's work and for the specialists?

Dr. RUSSELL. I should say that we are spending three-fourths for the county agent work and 25 per cent at the college for specialists and overhead.

Mr. TINCHER. How many of these experts are sent out from Washington?

Dr. RUSSELL. Generally speaking, we do not need an expert from Washington if we have a field that is already covered by a man on the ground, because he is more familiar with the local conditions than a Washington man can be. We are making more and more cooperative arrangements with the Washington men in connection with certain lines of work which we do not have in our college, whereby the men are paid partly by Federal money and partly by State money and are located at the college, carrying out this work cooperatively between the two. Take, for instance, bees, on which we have a man now, Washington paying three-fourths of the expenses and we one-fourth. We would not be able to carry on this work if it were not for this cooperation with Secretary Houston.

The CHAIRMAN. You match the money we appropriate with the local funds, doubling the amount, which makes available on an average more than \$4,500 for each county.

Dr. RUSSELL. The State pays half of it.

The CHAIRMAN. I understood you to say that you paid only \$1,800 in to the county. What becomes of the other \$2,700?

Dr. RUSSELL. That I cannot answer, because I have no knowledge of what the Federal figures are. We could not say that we receive \$4,000 or \$2,000 per county from Washington, but we get a certain amount based on our rural population, which for Wisconsin was \$80,000 last year. That \$80,000 has got to go for all our Smith-Lever work, of which, as I say, roughly, 25 per cent is work carried on at the college for these specialists and for administrative overhead. The other 75 per cent is spent for the men located in the counties; and maybe three-fourths of that, in round numbers, would be about \$60,000 that is actually spent in the counties.

Mr. HEFLIN. How many counties have you?

Dr. RUSSELL. Seventy-one.

The CHAIRMAN. The \$80,000 pays the expense of specialists sent out by the department, which, it seems to me, is an extraordinarily large amount in comparison with the sum paid to the counties.

Dr. RUSSELL. Of course, an analysis of that ought to be submitted to you by the Secretary's office. I have no knowledge as to that.

The CHAIRMAN. We are told by the department that all the specialists are assigned to the colleges and that the work is done and managed directly from the colleges. It seems to me there is a discrepancy between the amount that is made available and the amount that really goes through your hands.

Dr. RUSSELL. I would be very glad to help analyze that problem. It is an important one from your point of view, as I can see.

Mr. RUBEY. You get \$80,000?

Dr. RUSSELL. Yes.

Mr. RUBEY. And you have 71 counties?

Dr. RUSSELL. Yes.

Mr. RUBEY. So that you only get a little over \$1,000 to a county. That would make an average of about \$1,000 to a county if all the counties had agents. If you have 50 counties out of the 71 which have agents, that would make it about \$1,600 on the average in each of the 50 counties in operation.

Mr. TINCHER. What does the State pay toward the work in each one of those counties?

Dr. RUSSELL. We pay from \$1,800 to \$3,500. If a man's salary is from \$1,800 to \$3,500, that is made up from a contribution by the county—

Mr. TINCHER. From the local county?

Dr. RUSSELL. From the county taxpayers. That is local. That comes from the county. Then the State gives \$1,000 for each county, and the balance is furnished by the United States through the Smith-Lever Act and the direct appropriations to the department.

Mr. TINCHER. What is the amount that goes to the county agents from the Smith-Lever funds?

Dr. RUSSELL. On the average, \$60,000 out of the \$80,000 goes to the county agents in the State.

• Mr. TINCHER. That would be \$1,200 apiece?

Dr. RUSSELL. Yes; \$1,200 apiece, on the average. That varies. In the counties where the agent gets \$1,800 it is not as large, of course, as in the counties where the man gets \$3,500. I am certain that we can make an analysis of that thing for you, with Mr. Harrison's aid, that ought to clear up that matter.

Mr. YOUNG. About what is the attendance at your agricultural college?

Dr. RUSSELL. About 1,300.

Mr. HEFLIN. Mr. Chairman, Dr. Riggs, from South Carolina, is here, and I suggest that we hear him briefly.

The CHAIRMAN. We will be glad to hear him. Dr. Pearson has the matter in charge; whatever he suggests.

Dr. PEARSON. I intended to call on Dr. Riggs next.

The CHAIRMAN. You may proceed, Dr. Riggs.

STATEMENT OF DR. W. M. RIGGS, PRESIDENT OF CLEMSON AGRICULTURE COLLEGE, CLEMSON COLLEGE, S. C.

Dr. RIGGS. Mr. Chairman, I see no particular reason for appearing, unless it is because of the fact that I am from a section of the country that has not been heretofore represented. I come from South Carolina. In the South this extension work has existed longer than in any other section. In my State each county has a county demonstration agent, and these agents are backed up by the necessary specialists, so that we have a well-rounded organization.

I think probably the conditions in the South best show the great importance of demonstration work. If this work had been begun soon enough I feel sure that a large part of the losses that we have suffered would not have come about at all. If we had had such an organization earlier it probably never would have come about.

We have in the South some problems along research lines which are exceedingly important. The Government only recently published a ruling to the effect that no fertilizers could be sold in this country which contained more than one-tenth of 1 per cent of borax, unless that fact was stated on the goods. The fertilizer manufacturers declined to make such a statement, on the ground that if people know that a fertilizer contains borax, nobody will buy it. That illustrates the lack of research. Nobody knows anything about the effect of borax upon crops. There is not even a satisfactory chemical method of determining the percentage of borax in mixed fertilizer; or there was not until this question came up. Here is a brand new field in which research must be undertaken. In many States soil and climatic conditions are different. We, as an agricultural college in South Carolina, are confronted with the problem of investigating the effect of borax on crops. It is impossible for us to undertake that research because of a lack of funds. That is merely illustrative of the condition that exists all over the country; and we are having that condition to meet. You must not forget that these land-grant colleges are very poor colleges; and they are not merely colleges in the sense that that word is ordinarily understood, but they are called upon for all kinds of service. If we are to meet that demand, that means that we must have the necessary funds.

I feel that the people will never relinquish that which they have become accustomed to and upon which they have been accustomed to rely. In our State all we can do is to use such funds as have been provided by State authority and to put the responsibility upon Congress and the State legislature if the funds are not appropriated in the degree necessary to do the work. We feel that we are not coming before the Congress or legislature as suppliants in any sense but are asking for money to do necessary service, leaving the responsibility with the State legislatures and Congress as to whether those funds are available. That is my attitude as a southern college president. We are in a State where the farm-demonstration work has been most completely developed; I believe our people need more than ever before a liberal support for extension work, and I know that they need more than ever before a liberal addition to the funds which are available for agricultural research. I believe that is as much as I have to say, because these gentlemen who are agriculturists have spoken to you. I am an electrical engineer and could not answer agricultural questions if they were asked me. That is all that I want to say—that these colleges occupy a peculiar and unselfish relation to this work, and that these appropriations are intended to extend the service of the college to your constituents at home on the farm.

MR. ANDERSON. May I ask you how much money is spent for extension work in the average southern county?

DR. RIGGS. I would have to answer in terms of my own State, because very often we college presidents are not familiar with the financial conditions that obtain in our own colleges, let alone in other States. I understand that during the war we had 45 counties. I believe our overhead expenses must have run 10 per cent. The rest was spent on home-demonstration work, boys' and girls' club work, and so on.

MR. ANDERSON. That is about \$6,000 a county?

DR. RIGGS. Yes.

MR. TINCER. How much of that was Federal money?

DR. RIGGS. The amount from the Smith-Lever act was \$77,000 last year. The appropriations from other Federal sources amounted, I think, to something like \$130,000 to \$140,000, from various emergency appropriations and from various bureaus.

MR. HEFLIN. Altogether, you say, it was about \$130,000 or \$140,000?

DR. RIGGS. Yes; I think so.

THE CHAIRMAN. You had \$77,000 of Federal money altogether?

DR. RIGGS. \$77,000. I am not speaking from actual figures now. I have not the actual data in mind. I think probably South Carolina is one of the most typical States because of the complete development of the work in that State. It extends to every single county.

THE CHAIRMAN. We are grateful to you, Dr. Riggs.

DR. PEARSON. May I have one word more?

THE CHAIRMAN. Certainly.

DR. PEARSON. Dean Mann has asked to be excused because of the time having been taken up. I want to leave with you as a matter of record the fact that the extension directors have been considering

the amount of money that they could use to the best advantage, and they very ardently hope that this committee will see its way clear for next year to increase the supplementary Smith-Lever appropriation from \$1,500,000 to \$3,000,000, and they have prepared a statement of the way that that money could best be used. I would like your approval of the filing with you of a statement in regard to this and a further statement in regard to the station funds. We are very much obliged to you.

The CHAIRMAN. We are very grateful to you, Dr. Pearson, and to all of you gentlemen.

The committee will now recess.

(Thereupon at 12.10 o'clock p. m. the committee recessed until Wednesday, Jan. 14, 1920, at 10 o'clock a. m.)

COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Saturday, January 10, 1920.

The committee met at 10 o'clock a. m., Hon. Gilbert N. Haugen (chairman) presiding.

The CHAIRMAN. Mr. Harrison, whom will we hear next?

Mr. HARRISON. We will take up the estimates of the Bureau of Public Roads. Mr. MacDonald, chief of that bureau, is here, and he will make a general statement and then proceed with the discussion of the individual items.

STATEMENT OF MR. THOMAS H. MacDONALD, CHIEF OF THE BUREAU OF PUBLIC ROADS, DEPARTMENT OF AGRICULTURE.

Mr. MACDONALD. Mr. Chairman, and gentlemen, I think it will not be necessary for me to take much of the time of the committee in discussing our estimates, because they differ in only a few items from those of preceding years.

Like all governmental bureaus, we are passing through a period in which we are picking up the loose ends and reestablishing the lines of service largely disrupted by the war. During the period of the war about 42 per cent of our engineering and technical force went into the military service.

By reading the reports of the hearings of preceding years, I have learned that a pledge was made by the director of the bureau, Mr. Page, that if the money that was appropriated by the Congress was found to be unnecessary during the war, it would be turned back into the Treasury. I therefore wish to report that for the fiscal year 1918 we turned back into the Treasury \$80,000, and for the fiscal year 1919 we turned back \$64,000.

The work of the Bureau of Public Roads is divided into three main lines of activity: First, the Federal-aid road work, which we administer; second, tests, research, and economic investigations related to highway construction; and, third, agricultural engineering, dealing with the engineering problems directly affecting agriculture. It is proposed by the department to refer all the engineering problems originating in and pertaining to agriculture to the Bureau of Public Roads.

I wish to devote most of the time allowed for the hearing by this committee to the discussion of this third phase of our work—that is, the engineering problems relating to agriculture. The Federal-aid work, the first division of our work, is provided for entirely under the Federal-aid road act and is not dealt with in the estimates which are before you. We are allowed 3 per cent of

the Federal-aid fund for administrative purposes, and none of that fund is involved in these estimates before you. Therefore you have only to consider the two phases of our work, the test, research, and economic investigation work as related to highways, and the agricultural engineering work, consisting of irrigation, drainage, and the rural engineering problems of a more mechanical nature.

Mr. McLAUGHLIN of Michigan. That is, 3 per cent of the \$200,000,000?

Mr. MACDONALD. Yes, sir; \$6,000,000.

Mr. HARRISON. That is over a period of three years, Mr. McLaughlin.

Mr. McLAUGHLIN of Michigan. Are the men employed in your office or anywhere in connection with your work, and paid out of that percentage, engaged in any other kind of work in the bureau?

Mr. MACDONALD. No, sir. No; absolutely not.

Mr. McLAUGHLIN of Michigan. They give their time exclusively to that?

Mr. MACDONALD. Exclusively, but some of the men employed on the other rolls—in testing and research work, for example—give part of their time to Federal aid work; that is, they test the materials used in the work. You understand, however, that the 3 per cent referred to is 3 per cent of the Federal funds. As the Federal aid funds are met by more than an equal amount by the States, our administrative fund is actually less than $1\frac{1}{2}$ per cent of the amount which we must administer and to the expenditure of which we must extend general supervision.

Mr. HEFLIN. We provided for the use of war machinery, motor trucks, and other machinery to be used on the roads in the various counties. What are you doing on that now?

Mr. MACDONALD. This bureau is acting as the distributing agency. We have assigned a section of the division which handles the Federal aid work to this duty. The Federal-aid money is the only money we have that could be used for the necessary administrative expenses. Our solicitor advised that this work, being part of the same general plan of Congress, the Federal-aid funds could be used for distributing this equipment, such as the motor trucks and other road-building machinery, to the States.

Mr. HEFLIN. You have distributed it?

Mr. MACDONALD. Up to the 1st of last July we had distributed from twelve to fifteen thousand motor trucks—I do not have the exact number—and will distribute, all told, about 27,000 motor trucks and a considerable amount of other road machinery.

Mr. ANDERSON. When you make distribution is it of a character which gives complete title to the State highway commissions?

Mr. MACDONALD. It is not under the present law, which prescribes that the allotted material must be used on roads constructed in whole or in part by Federal aid, but we have recommended that complete title be given to the States. Such a recommendation was included in a bill introduced by Congressman Kahn, of the House Military Affairs Committee. I believe that complete title should be given to the States.

Mr. ANDERSON. Without any limitation at all as to the uses to which it should be put?

Mr. MACDONALD. No, sir; I think it should be strictly limited to use for road purposes.

Mr. ANDERSON. It seems to me the one proposition is inconsistent with the other; that is to say, if you give complete title, I do not see how you are going to limit the uses which go with that title.

Mr. MACDONALD. That question came up in the Senate Military Affairs Committee, and I am simply passing along the legal opinion that came from one of the Senators there that it was not inconsistent for Congress to tie a string to gifts, if it desires so to do.

Mr. ANDERSON. I think that is true; but when you tie a string to the gifts, you do not give an absolutely unqualified title.

Mr. MACDONALD. We believe that all of this equipment can not be used to advantage by all the State highway departments, and that some of it could be better used by the counties for local road construction. Moreover, the present law provides that the equipment may be used on Federal-aid road work only. While it is possible, under that provision, for some of the States to distribute the equipment among the counties, because in those States the Federal-aid work is carried on through the counties, in other States it is unlawful for the State highway department to release any of the State's share of the equipment to the counties, because Federal-aid road work is performed solely by the State. Our recommendation was intended to give authority to the State to use the equipment for public-road purposes, not limiting it to use on Federal-aid road projects exclusively.

Mr. PURNELL. What is the basis for distribution?

Mr. MACDONALD. The same as we use in making the Federal-aid allotments. Each State's proportion depends on the relation which its population, area, and mileage of post roads bears to the total population, area, and mileage of post roads in the United States—the same factors which are used in distributing money are used in distributing trucks. We try to adhere to a value basis, but there have been enough units of each particular kind to enable us to distribute by units rather than value.

Mr. HEFLIN. Do the counties desiring this machinery make application to you?

Mr. MACDONALD. The counties desiring this machinery make application to the State highway department.

Mr. HEFLIN. And the State highway department makes application to you?

Mr. MACDONALD. Yes, sir. And there is that condition in the States that some of the States can distribute these trucks to the counties, because they work entirely through counties. I think I make that point plain—that they do no work directly. In Missouri, as I recall, the State highway department is not in direct charge of road work; they also work through the county boards in Kansas and Iowa. In Illinois the State highway department does the work itself, and not through the medium of the county, so that they have these trucks tied up. The counties are not able to use them and they are clamoring for their use. I think that by simply extending authority to the State departments to permit the use of these trucks by the counties on other than Federal-aid work they may be made of broader service to the States.

Mr. ANDERSON. Mr. MacDonald, I understood from your preliminary statement that you did not intend to go into this road business

in detail. I think the committee would be interested in knowing something about the organization, the machinery for the distribution and the expenditure of the Federal-aid road fund. While it is not particularly a part of this bill, unless we get it in these hearings we won't get it at all, and I imagine a good many questions will be asked of the chairman of the committee in regard to the machinery that has been set up for the distribution of this fund.

Mr. MACDONALD. As to our road work, we have the Federal aid funds to administer under the first division. The States—all of them—have met the Federal aid funds more than half way. We are giving, on the average, not more than about 40 per cent of our last estimates, the States paying 60 per cent, and they have over-subscribed the funds. That is sufficient to show that there is great interest in the building of roads; and we want our administration of the expenditure of the large sums which have been subscribed in 48 States to be such that we may feel that we have wisely discharged the responsibility placed upon us by Congress. But, to discharge that responsibility with wisdom means that we must now revise many of the standards which we had set up prior to the war. In a way, the war ended one period of our road history and inaugurated another—the era of the motor truck. Prior to 1915 the production of trucks was very limited. The whole production up to that year from the time the first trucks were manufactured in 1900 was little more than one-half as great as the production during the year 1918 alone, when 250,000 were manufactured. Many of these vehicles which now use the highways are far heavier than any which the roads had been called upon to carry before the war; and they have had a most damaging effect upon the highways built according to the old standards. Indeed, we are now facing the necessity of practically reconstructing our whole road system to carry this heavy truck traffic. To do so will call for the expenditure of vast sums of money, including, undoubtedly, much of the money appropriated by Congress for Federal aid. But before we enter upon so vast a program I feel that it is vitally important that we study the existing situation very carefully to the end that whatever standards we set up to replace the outgrown standards of the pre-war period may be scientifically designed to meet the requirements of the new situation.

That brings me to the work which we have laid out for our testing, research, and highway economics divisions. Without going largely into details of that work—we can go into them as far as you desire—the work we have planned is to find out how much traffic there is on the roads, the types of vehicles which compose the traffic, the weights we are going to carry, the amount of products moved, the distance they are going to be hauled on the roads, and the maximum size of loads to be carried, and, from these figures, to determine what kind of work we will have to do on the roads, or what kinds of roads we will have to build. That means very detailed and very scientific investigations. For instance, I have here a pressure gauge. It looks like a rather intricate machine. It is designed for the purpose of determining the intensity of pressure produced under our road surfaces on the subgrade by the known wheel loads of vehicles on the surface. We can determine, through

the use of this little pressure gauge, the effect which the weight of a heavy truck, as distributed throughout the road crust, will have upon the subgrade below, and that is one of our great problems.

I call your attention to some of the effects of the heavy traffic that has broken down road surfaces. For instance, I am pointing out in this photograph a concrete road broken up by heavy truck traffic. We believe that it is rather a matter of drainage underneath than any fault in the road surface itself. But there have been failures in all types of road from gravel up to the very highest types. Here [exhibiting photograph] is a failure of a very high-class brick surface, due to the heavy truck traffic. That brick surface was maintained prior to the war, and, we expected, when it was put down, that it would be useful for at least 15 or 20 years. As you see it was a brick road on a 4-inch concrete base, and it was destroyed by the heavy truck traffic that came upon it.

In that connection, one of the most interesting experiments has been to find out just what the trucks do to the roads, and it has been necessary to make measurements of the blow struck by a moving truck wheel. I do not want to go too much into the details of some of these matters, but they are all of very great interest and value to us. For instance, here is a copper cylinder [exhibiting] half an inch in height and half an inch in diameter, a standard copper cylinder, heat treated by the same method that is used at the Frankford Arsenal for preparing similar cylinders to determine the recoil of the gun mechanisms. This illustrates how the blow of the heavy truck wheel is delivered through a plunger [indicating] to the copper cylinder, and that is the same cylinder after the truck has passed over it [indicating]. By the difference in the height of the cylinder before and after the truck has passed over it we can measure the intensity of the blow which the moving wheel delivers to the road. We have found that one wheel of a loaded 5-ton truck moving at 10 miles per hour and falling upon the measuring device from a height of only one-quarter of an inch will deliver a blow to one of these cylinders equivalent to a static load of more than 20,000 pounds, or a dead load of practically 10 tons. If you can imagine the weight of one of these big road rollers—a big three-wheeled steam road roller—concentrated upon an area of the road's surface no larger than one of these small cylinders, you may get some conception of the blow that one wheel of a 5-ton truck running at 10 miles per hour repeatedly delivers to a road. Of course the speeds and weights of trucks vary greatly and there is a corresponding difference in the effect they have upon the roads. It is to determine this and other equally important facts about truck traffic that we are asking in the estimates an increase of \$30,000 to carry on research work. That is the first increase we are asking.

In the third line of work—agricultural engineering—we have the drainage work, irrigation, and rural engineering—that is, investigations of the mechanical problems related to agriculture.

We have a map which I would like to have the committee look over with Mr. McCrory, our Chief of Drainage Investigations, which shows the different activities relating to the reclamation of swamp lands, and a map showing the swamp and overflowed lands that we now have, which, through the application of proper reclamation

measures, can be made available for agriculture—good lands, that with reasonable expenditures can be made available. We have prepared a chart to show the different areas in which those activities exist.

As far as irrigation is concerned, Mr. Teele, who has been connected with that work in California, but who is now with the Census Bureau, on leave from our bureau, is here, and I will ask him a little further on to present to you the case of the reorganization of the old irrigation districts in the West. In some of the first irrigation districts that were formed they have now found that through the wasteful methods of using water, the poor ditches, and the duplicating system of distribution which they have built (like Topsy, they just grew from time to time), they are now facing the necessity of entirely reorganizing and revamping the distribution system in order to have enough water to carry on their work and provide for the natural expansion of their cultivated area. This condition exists in many of the oldest irrigation districts.

Sometimes the question comes up as to the relation of the irrigation work of this department to the irrigation work of the Reclamation Service. The land that has been put under the Reclamation Service is only a very small fraction of the total area irrigated. So far as I know, the Department of Agriculture is the only department giving any help to the farmers on the other irrigated lands.

We deal entirely with the agricultural problems after the water is placed on the land by the Reclamation Service. We do not place the water on the land. Many of these private and old-established irrigation districts are now facing the necessity of an entire reorganization of their whole system in order to supply enough water to provide for extending their irrigated areas. It is one of the most serious problems I know of in the West, so far as irrigation is concerned, and I am hoping the committee will hear Mr. Teele on this point.

So far as the rural engineering work is concerned, a very important single point with reference to that work is the testing of tractors, and for the development of this work, and with this particular point in mind, we are asking the largest increase of any, \$75,000.

Summarizing our requests, Mr. Chairman, we are asking a \$30,000 increase for testing and research work; that irrigation be placed back on the prewar basis by an addition of \$20,000 over last year's appropriation; that drainage work be given \$10,000 more than the prewar appropriation; and that the appropriation for rural engineering be increased by \$75,000. All of these increases, with the exception of \$30,000, are for purposes directly related to the application of engineering principles to agriculture.

Among other things which I feel that the department has accomplished along the line of working out the mechanical problems related to agriculture is the successful completion of the dusting machine for the prevention of the boll weevil in cotton.

This photograph shows the machine for spraying the dust over the cotton plants to prevent the boll weevil. This machine has been developed by the Bureau of Public Roads, through the rural engineering division, in cooperation with the Bureau of Entomology in the Department of Agriculture. An interesting thing about this

machine is that we have to fit it up with lights, so that they can operate at night. The dust can only be used when the crop is damp.

Mr. PURNELL. What is the approximate cost per acre?

Mr. MACDONALD. Mr. McCormick, can you answer that?

Mr. MCCORMICK. The machines have not yet been manufactured commercially. That work is just being started. The machine will cost in the neighborhood of \$300 or \$400, and one machine will take care of from 25 to 30 acres.

Mr. PURNELL. I wondered what the approximate cost per acre for doing that kind of work is, the spraying part of it.

Mr. MCCORMICK. I can not give the exact figures for that. Each application requires five pounds of calcium arsenate per acre, and there should be four or five applications per season. The arsenate costs from 22 cents to 30 cents per pound, making the cost of material from \$1.10 to \$1.50 per acre per application. The labor will vary with the wages paid and the type of machine used.

Mr. ANDERSON. Is it a dry spray?

Mr. MCCORMICK. Yes, sir.

Mr. WILSON. Is it the idea for the department to purchase large quantities of these machines?

Mr. MCCORMICK. Not to purchase any machines. We have designed, developed, and made a working model, a full-sized model.

Mr. HARRISON. It has been made for use in the experimental work which we are conducting in connection with the efforts to control the boll weevil.

Mr. MCCORMICK. Some eight manufacturing companies are now studying this problem with the view of manufacturing the machine and putting it on the market.

Mr. YOUNG. What material is used in the spray?

Mr. MCCORMICK. Arsenate of lime.

Mr. MACDONALD. That illustrates simply one of the lines of activity of the Division of Rural Engineering in the application of engineering and mechanical principles to agriculture.

Mr. YOUNG (referring to photographs). Is that the machinery that is being used in the Louisiana experiment?

Mr. MCCORMICK. Yes, sir.

Mr. HARRISON. The Bureau of Entomology, of course, is conducting the experiment, and the Bureau of Public Roads has merely aided it in designing this machine.

Mr. MACDONALD. We take care of the mechanical and engineering feature only. The problem of the proper spray to use is outside of our province. They say what they want to use, and we help them with the design of the proper mechanical apparatus for using it. We are encouraging manufacturers to make those machines—not one manufacturer only but a number—so that the cost will be reduced to the lowest possible figure to the farmer.

I think you will not be inclined to criticize the machine for being overelaborate, either.

The CHAIRMAN. Is this an engine on the wagon?

Mr. MACDONALD. No, sir; it is a blower operated from sprockets on the wheels. There is no engine in connection with it. The larger one has an engine.

The CHAIRMAN. It is a blower?

Mr. MACDONALD. It is.

Mr. WILSON. Why do you say you have to work with electric lights?

Mr. MACDONALD. We have to work when the field is wet with dew.

The CHAIRMAN. Do you generate electricity?

Mr. MACDONALD. We are getting carbide lights.

The CHAIRMAN. Let us take up your estimates item by item. What is the first item?

Mr. MACDONALD. Page 227.

The CHAIRMAN. That is the statutory roll. If there are any changes you may point them out.

Mr. MACDONALD. There is no change in that.

The CHAIRMAN. Item No. 2. One editor, \$2,500, is changed to one chief clerk, \$2,500.

Mr. MACDONALD. Mr. Chairman, that item was discussed before your committee a year ago, and that place has been vacant ever since. We are now asking that the title of the place be changed to chief clerk so that that officer can be transferred to the vacant place.

The CHAIRMAN. The next is No. 9, seven clerks, class 3, increase of one by transfer from lump fund for road building and maintenance. That is a transfer from the lump-sum roll?

Mr. MACDONALD. Yes; that is a transfer from the lump-sum roll.

The CHAIRMAN. No. 11, three clerks at \$1,500 each, an increase of one by transfer?

Mr. MACDONALD. There is no change, I think.

Mr. HARRISON. The committee would like to have you refer to each item in which there is a change and indicate what it is so that the facts will appear in the record. The next item is No. 36, on page 278.

Mr. MACDONALD. One mechanic, by transfer from lump fund for road building and maintenance, \$2,100.

Mr. HARRISON. The next is No. 40.

The CHAIRMAN. One skilled laborer or mechanic is transferred from the lump fund.

Mr. MACDONALD. Yes; from road management.

Mr. HARRISON. The next is No. 42.

The CHAIRMAN. One telephone operator by transfer from lump fund?

Mr. MACDONALD. That is a transfer from the lump sum for road building and maintenance, and that fund has been reduced by that amount.

The CHAIRMAN. I believe that is all.

Mr. HARRISON. Those are all the changes on the statutory roll.

The CHAIRMAN. What is the next item?

Mr. MACDONALD. The next item in which any change appears is item 53, which shows a reduction.

The CHAIRMAN. You may care to comment on item 52.

Mr. MACDONALD. That is the introductory paragraph to the items under General Expenses.

The CHAIRMAN. Then the next item is No. 53.

Mr. MACDONALD. In item 53 the amount of the previous appropriation has been reduced by the transfer of one skilled laborer and one clerk. That is the only change in that item.

The CHAIRMAN. A decrease of \$2,040.

Mr. MACDONALD. And the same is true of item 54, a decrease of \$5,920, due to transfers to the statutory roll.

The CHAIRMAN. Kindly state which is the item for investigations of the best methods of road making.

Mr. MACDONALD. Item 54, for the investigation of the best methods of road making, especially ordinary sand, clay, and dirt roads, and the best kinds of road-making materials, and for furnishing expert advice on road building and maintenance; \$138,220 in the last appropriation, reduced to \$132,300 in this appropriation.

Mr. MACDONALD. Item 55, "for investigations of the chemical and physical character of road materials." This language is new: "for conducting laboratory and field experiments, and for studies and investigations in road design, independently or in cooperation with State highway departments and other agencies." The former appropriation was \$47,020, and we are asking an increase of \$30,000, making \$77,020. That is the work to which I referred as the field and laboratory work necessary to solve the physical and chemical problems which we encounter in the design of roads to carry the modern truck and automobile. The change in language is for the purpose of enabling us to work in cooperation with State highway departments. We propose to work largely through the State laboratories.

Mr. McLAUGHLIN of Michigan. Why can you not do that under your percentage appropriation, under the Federal-aid road act?

Mr. MACDONALD. In the first place, it is not sufficient to allow work of this character to be done and, in the second place, that percentage can not be expended for work of this character. That can only be expended for the administration of the act. I will discuss that point when we reach it; but of the amount that we are administering we have less than 1½ per cent for administrative purposes, and it is not possible to expand our organization to carry these other problems.

Mr. McLAUGHLIN of Michigan. Do you mean you can not carry on studies and investigations in road design with that percentage money?

Mr. MACDONALD. The men who are assigned to the construction of Federal-aid roads can, of course, as an incident to their principal work, do some of this research work. But a part of the appropriation we are asking under item 55 would undoubtedly have to be used to defray the special expenses of this incidental work. We expect, eventually, to learn a great deal from the construction of the Federal-aid roads, but, naturally, our observations of these roads will not reveal much information of value until they have been in service several years. For our immediate information we must do a considerable amount of laboratory work in the way of designing instruments with which to make accelerated tests of the various types of pavements, and in making the tests themselves.

Mr. McLAUGHLIN of Michigan. I do not remember the words of the law in regard to the percentage for administration, but, if you will pardon me, it seems to me it is putting a narrow construction on that, much different from the construction made by other bureaus of this department in analogous cases.

Mr. MACDONALD. I do not wish to place a narrow construction on the law.

Mr. HARRISON. Mr. McLaughlin, section 4 of the act reads this way: "That so much, not to exceed three per centum of the appropriation for any fiscal year made by or under this act as the Secretary of Agriculture may estimate to be necessary for administering the provisions of this act shall be deducted for that purpose, available until expended."

The CHAIRMAN. Why can you not do this better under item 54, which is the fund for the investigation of the best methods of road making? Sand-clay roads are included in the road-building act, are they not?

Mr. MACDONALD. Yes; we are building a large number of them through Federal aid, but we use the money we receive under item 54 to assist the counties and townships.

The CHAIRMAN. Outside of that?

Mr. MACDONALD. Outside of the Federal-aid road act. The fund under item 54 is the only fund from which we can give assistance to the counties and townships other than the assistance which is given on roads built by Federal aid, which will constitute a very small percentage of the roads.

Mr. JONES. Why can not the same information which you obtain from the investigations which you make out of the appropriation in the Federal-aid act be given to the townships and counties for the construction of their roads which are not State roads?

Mr. MACDONALD. We do not make any experimental or investigational studies with the Federal-aid funds. They provide only for the administration of the act. The States have presented to us plans and specifications which we have approved as general and standard specifications and plans, and our administration of the act is confined to the building of roads under these standard plans and specifications.

Mr. HUTCHINSON. Does not the Government have agents in each State department to supervise the roads?

Mr. MACDONALD. The Federal-aid roads?

Mr. HUTCHINSON. And other roads, too.

Mr. MACDONALD. No, sir; the State, county, and township funds are administered by the State highway department, or by the county supervisors, or by the township officials.

The CHAIRMAN. What is the next item?

Mr. MACDONALD. There is no change in item 56.

The CHAIRMAN. This refers to road materials?

Mr. MACDONALD. Yes, sir; it continues work which we have been doing in connection with the investigation of the results of field experiments in the use of different kinds of road materials and different methods of construction. We propose to carry on this work in connection with the Federal-aid work.

Mr. McLAUGHLIN of Michigan. Do you propose to construct any buildings? This provides for the erection of buildings. Have you any in mind?

Mr. MACDONALD. We have no buildings in mind. There is a laboratory building provided for in another appropriation, but we do not expect to go ahead with that until prices are cheaper. It is impossible at this time to get a laboratory for the money that has been provided.

Mr. HARRISON. The appropriation for the building, \$75,000, carried in the act for 1918, Mr. McLaughlin, and we deferred construction on account of the prevailing high prices. The money is available until expended.

Mr. ANDERSON. You are doing some work over there with respect to testing cement and other materials?

Mr. MACDONALD. Yes. All the experimental work conducted under item 55 has been carried on there. The language of this item as revised will enable us to carry on part of the work through the cooperation of the laboratories of State highway departments and educational institutions. It is the same class of work that we have been doing over at Arlington Farm. The character of the work is illustrated by the tests which we have been making on the effect of the action of heavy wheels on various kinds of road surfaces. I would like to make it clear to the members of the committee that it is the accelerated tests such as we conducted at the Arlington laboratory that we can not carry on under the Federal-aid road act. But the information that we get from these tests, especially from the accelerated tests, is of great value in designing Federal-aid and other highways.

For instance, on this machine [exhibiting photograph] each wheel weighs a thousand pounds, and we move it back and forth for a long period over different classes of surfaces. This process is what we call an accelerated test. We have already broken up some of the road surfaces which have been laid and which up to the present time we had thought were very good construction. You see, by the use of this machine we accelerate the normal action of heavy-rolling loads, so that we are able, in a short time, to produce an effect which normally would result only after a long period. The work of testing the impact of truck wheels, in connection with which I showed you the use of these copper cylinders, is also of this class of semifield and semilaboratory work. All information of this sort is used directly in the design and construction of the Federal-aid roads.

FEDERAL-AID ROADS.

The CHAIRMAN. Are you ready now to take up the Federal road act?

Mr. MACDONALD. Yes, sir.

The CHAIRMAN. Can you state the amount available and how much you expect to expend?

Mr. MACDONALD. Under the Federal-aid act of 1916, a total of \$75,000,000 was appropriated for Federal-aid road work. The appropriation available for the fiscal year 1917 was \$5,000,000; for the fiscal year 1918, \$10,000,000; for the fiscal year 1919, \$15,000,000; for the fiscal year 1920, \$20,000,000; and for the fiscal year 1921, \$25,000,000.

Under the post-office appropriation act of February 28, 1919, an additional amount of \$200,000,000 was made available, of which \$50,000,000 was immediately available; \$75,000,000 was available on the 1st of last July; and \$75,000,000 is to be available on July 1, 1920, for the next fiscal year. There will then be \$100,000,000 due the 1st of next July, which is the last of the total appropriation of \$275,000,000.

Up to the present time, therefore, there has been made available \$175,000,000 for expenditures through the Federal-aid acts and on the 1st of next July there will be an additional \$100,000,000. The latter amount will be available for use at any time during the two-year period following the 1st of July, so that construction will be continued at least through this two-year period. During the war expenditure of this money was stopped almost completely, partially by direct action on the part of the States and the Federal Government in refusing to go ahead, and partially because of the impossibility of going ahead with the work on account of a lack of labor and materials. A large part of the personnel of all the highway organizations went into military service, and the expenditure was cut down very materially. During the fiscal year 1918 only \$425,445 was paid to the States, while the amount paid the year previous to that, which was the first year we did any work, was \$2,702,247.

The CHAIRMAN. How much is available now and how much unexpended will be available the 1st of July?

Mr. MACDONALD. I will have to give you those figures by the fiscal years.

The CHAIRMAN. Have you the total amount available?

Mr. MACDONALD. The unexpended balance on the 1st of July, 1919, was \$74,472,306. The new appropriation for this year was \$95,000,000, so there was on that date a total available to the States of \$169,472,306.

On the 1st of next July another \$100,000,000 will be available. Construction from that date will run over at least two years, and may run even longer than that. I think, Mr. Chairman, in that connection, we shall have to extend the period during which this money is to be available, or some of the States will lose some of their pro rata because of their inability to expend it.

Mr. McLAUGHLIN of Michigan. Have the States provided the money, or can they find no way of expending it? Is that what you mean?

Mr. MACDONALD. The States have provided the money to meet the Federal-aid fund in excess of the requirements of the law. That is, we have only participated to the extent of about 40 per cent of the total cost, but in a number of these States materials and labor and contractors are not available to do the work. The counties are, in some instances, carrying out a big program outside of the State program, especially counties in which large cities are located, like Wayne County, Mich., so that, while the money is available, it will probably not be expended during the two-year period. We shall have to extend the period of its availability. None of the States have failed to meet the allotments by more than the amounts required.

Mr. Chairman, I think you would be interested in a statement of the types of road that we have approved for projects. During the fiscal years 1917, 1918, and 1919 we have executed projects, on which we propose to pay at most 50 per cent of the cost, as follows: Earth roads, 1,790 miles; sand-clay, 7.1 miles; gravel, 1,740 miles; macadam, 234 miles; macadam, mat-top, 185 miles; bituminous macadam, 142 miles; bituminous concrete, 127 miles; concrete, 643 miles; brick, 120 miles; and miscellaneous, 49 miles; so the earth, sand-clay, and gravel construction, located largely in the States of the South, in the Mississippi Valley and the far West, total 74 per cent of the miles approved.

That is nearly three-fourths of the total mileage approved. The in-between types, macadam and macadam, mat-top, total 7 per cent. The higher-type roads, such as bituminous concrete and Portland cement concrete, constitute 18 per cent, and the undetermined 1 per cent.

Mr. JONES. What was the percentage of water-bound macadam?

Mr. MACDONALD. That was 4 per cent.

Mr. JONES. That is just 4 per cent more than it ought to be, I presume.

Mr. MACDONALD. The protection of that type is falling off now very rapidly. Still there are some places where we have constructed macadam over heavy fills in order to carry the traffic until the fills have settled and become stable enough to support a surface of a higher type. I should be very glad to send the members of the committee this statement, which gives in a rather concise tabular form all these percentages and mileages. The information in this statement differs slightly from that which is contained in my report to the Secretary of Agriculture for the fiscal year ended June 30, 1919. Since the date of that report definite decisions have been made in the cases of several roads, the type of which had not then been determined, and the mileage of such roads is, in this table, added to that of the various types as given in the other table. I shall be glad to answer any other question.

The CHAIRMAN. Thank you, Mr. MacDonald. It is now after 12 o'clock, and the committee will stand in recess until 2 o'clock.

(Thereupon, at 12.10 o'clock p. m., a recess was taken until 1.30 o'clock p. m.)

AFTER RECESS.

The committee met, pursuant to taking recess, at 2.15 o'clock p. m., Hon. Gilbert N. Haugen (chairman) presiding.

STATEMENT OF MR. THOMAS H. MACDONALD, CHIEF OF THE BUREAU OF PUBLIC ROADS, DEPARTMENT OF AGRICULTURE—Continued.

The CHAIRMAN. The committee will come to order. Are you ready to proceed, Mr. MacDonald?

Mr. MACDONALD. Yes, sir. You brought up the question, Mr. Chairman, about the organization to handle Federal aid.

The CHAIRMAN. Are you through with your general statement about Federal aid for roads?

Mr. MACDONALD. Yes, sir; I have nothing further.

Mr. ANDERSON. I understood that you would take up the organization of the force which dealt with the distribution of the Federal-aid fund, and particularly the method of presenting the projects, and how they were dealt with by the forces in charge of this distribution.

Mr. MACDONALD. The organization which deals with the distribution of the Federal-aid fund consists of a general organization headed by the chief engineer in the Washington office and 13 district engineers in charge of the work in 13 groups of States. The districts vary in size. One embraces only one State, California; others include

four or five States; the largest one includes eight States. Projects for Federal aid are initiated by the States. As the first step, a statement is forwarded to the district engineer in authority, announcing, in effect, that the State proposes to build a piece of road of a certain type and length in a certain location. This statement we refer to as the project statement, and it is always accompanied by an approximate estimate of the cost of the proposed construction. The project statement is examined by the district engineer with the purpose of determining whether the project complies with the Federal-aid road act. If, in his opinion, it does, he forwards the statement to the Washington office with his recommendation. It is there examined by the chief engineer and his assistants, and, if the chief engineer concurs in the recommendation of the district engineer, the project is placed before the Secretary of Agriculture, with the recommendation of the bureau, for his approval. Until the Secretary has signified that the United States will cooperate, no further action is taken by the State. If the Secretary approves, the State is so notified, and it then proceeds to prepare detailed plans, specifications, and estimates for the work. These are examined in the field by the district engineer and his assistants and are passed from the district office to the Washington office, where the examination is completed by the chief engineer and his staff. In the preparation of the detailed plans and specifications the State is guided by certain standards which have been previously agreed upon between the bureau and the State. By standards, I mean typical plans and specifications, prepared with great care, for the various types of construction. They define, in a general way, the materials, methods, processes, and proportions of each general type of construction and are used as guides in preparing the special plans and specifications for particular projects. If, therefore, in the preparation of the plans, these standards are adhered to, the State has the practical assurance that the details of the proposed construction will meet with the approval of the Secretary.

Mr. ANDERSON. Does the Secretary or your office exercise any control over the type of road to be built or give approval of the type of road, or is it merely a matter of routine so far as the Secretary is concerned?

Mr. MacDONALD. It is not entirely a matter of routine. There have been cases in which the Secretary has not approved the type of road proposed by the States.

The cases in which this action has been taken have generally involved what may be called the in-between types; that is, types which are neither low-cost nor high-cost roads—compromise types—that are not proving successful now under any conditions.

We believe that there are only two general classes of roads which it is wise to build; either a low-cost road, such as earth, sand-clay, or gravel, on the one hand; or a high-cost pavement, on the other. It is our opinion that the in-between types of roads are the most expensive roads that we can build. If we build a sand-clay or a gravel road, we get good service out of it while the traffic is light; and if at any time the traffic becomes heavy enough to warrant a more substantial surface, we have the foundation ready, and we have not expended money that is thrown away. On the other hand,

we are developing a traffic near the larger cities which nothing but a very substantial pavement will carry; and, where that condition is to be met, it is foolish to experiment with a road of macadam construction or one of the halfway types which are breaking down generally under such traffic. We are recognizing these conditions and adjusting the type of road to the traffic, so that, to that extent, we do exercise control. We prefer to build a cheaper road rather than to build a high-cost road of the in-between type. We have no objection to approving an earth, gravel, or sand-clay road, and do approve more of them than any other type.

Mr. ANDERSON. All right. Go ahead now on the plans and specifications.

Mr. MACDONALD. After the plans and specifications are prepared by the State, they are submitted to the district engineer and are examined by one of his representatives. Generally, this representative goes over them with the State highway officials; very often he does not wait until the plans are completed but goes over the road to be built with the State highway engineers, pencil profile in hand; and he is often able in this way to suggest changes in the plans as contemplated, which facilitate their approval when they are completed. When they are approved by the district engineer, the contract may start. There may be minor adjustments and changes to make in the plans before they are sent to the Washington office; but, in the meantime, the State goes ahead with the letting of the contract and with the construction. Generally speaking, the States do not wait for the plans to come to Washington and pass through the routine here.

The procedure in awarding the contract is fixed by State laws and, consequently, some differences exist among the States. In general, however, two methods are followed. In those States in which the State highway department is in direct charge of road construction, the contract is awarded by the State department. The project is advertised at the State capitol, bids are received there, and the State highway department lets the contract. In other States, where the law places the counties in charge of road construction, and gives to the State department supervisory powers only, the county boards advertise for bids, the bids are taken locally, and the contract is awarded by the county board, with the approval of the State. Generally, a representative of the State department is present when the bids are awarded.

Mr. ANDERSON. Are these contracts approved by your office or by the Secretary?

Mr. MACDONALD. Yes, sir.

Mr. ANDERSON. What is the purpose of that approval? What I am getting at is this: It seems to me that there would be a great lack of uniformity because of the differences in the plans and on account of the different materials used in road construction. What I want to know is whether or not any supervision is exercised at this end of the line regarding the securing of uniform construction prices for materials, and so forth.

Mr. MACDONALD. Such supervision is exercised through the district engineer's office. The estimated cost is approved at the time the project agreement is made.

Mr. ANDERSON. Then your project agreement, or whatever it is, includes an estimate?

Mr. MACDONALD. It includes an estimate as to the cost; yes, sir; an estimate based on the average prices for labor and materials prevailing in the community. If, after the bids are taken, the prices are out of line with those estimates, presuming there is no reasonable explanation, the bids are rejected. In that way we are exercising supervision all the time on all the construction.

Mr. ANDERSON. You do not have any rule that the bids must be within the estimates?

Mr. MACDONALD. Yes; there are some States in which that is the case. It is the law in Indiana that bids must come within the estimates, and they can let no contracts in which the bids run over the estimates. I am not in sympathy with that, because I think it breeds a tendency to make the estimates rather high. I should prefer to use the estimates simply as a check upon the bids, allowing some latitude for the exercise of judgment as to whether or not the bids should be rejected in case they are high. Ordinarily, the bids do not vary materially from the estimates. I should say that we would allow a variation of 5 or 10 per cent, but we would not allow 50 per cent or any such amount.

Mr. ANDERSON. I would like to get down to a concrete proposition. Let us suppose that you have a road that you propose to build in Minnesota, and a road in Ohio of similar construction, and let us suppose that when the project statement for Minnesota is brought to the district engineer's office your office finds that the contract price for cement or for some other material is relatively high, or more than it ought to be as compared with what it is in Ohio. What do you do in cases of that kind?

Mr. MACDONALD. We always investigate such cases further. A similar proposition has been up recently, out in Colorado, where we thought the prices of cement were out of line. We conducted an investigation and succeeded in getting a slight reduction in the price of cement. In that case the cost was reasonably explained—that is, if you can reasonably explain the price of cement at all.

Mr. ANDERSON. I think there would be a question about that.

Mr. MACDONALD. Illinois furnishes a concrete example of what it is possible to do by way of regulating the prices of materials.

The State contracts for all of its cement at once, and by buying, by buying in very large quantities, the State is able to get the most favorable price, so far as I know, which is not done by any of the States.

Mr. ANDERSON. I was interested in the committee and the House is, just feels that it has to check up these contracts for reasonable uniformity in prices of the large quantities and to what extent it is possible to do so.

Mr. MACDONALD. We feel that we have not gone up to the present time. Every year has seen a new economic condition, and we have been continual readjustments, but we have been contemplating issuing a bulletin at intervals, giving prices for work let out

Mr. ANDERSON. Now, my impression is that the total program in dollars for next year amounts to something over \$600,000,000.

Mr. MacDONALD. That is the estimated amount that will be available.

Mr. ANDERSON. Has the department given any consideration to the probable effect of this road-construction program on farm labor, and particularly on farm tenants?

Mr. MacDONALD. Yes, sir, we have; the types of roads in the construction of which there may be a demand for the kind of labor the farms can supply are the inexpensive types, such as earth, sand—clay and gravel. But I do not believe it follows that the construction of such roads will draw necessary labor from farm work, because the character of roads of these types is such that the construction can be carried on in the farmers' slack seasons. The tendency in building roads of the higher type is to use machinery that does away with labor of the commoner kind. The men who are employed for such work are relatively skilled mechanics. It is the in-between types, to which I have previously referred, such as macadam with or without a mat top, which are most likely to draw seriously upon the supply of farm labor. Machinery has not been extensively used in the construction of roads of this character; in fact, machinery which will perform many of the operations involved in such construction has not been developed. Comparatively large forces of unskilled labor are required to handle such work. But, as I have said, we are discouraging such construction whenever it is possible. I think it fair to say that the larger contractors are not drawing their labor from the farms but rather from the mechanic classes. We have eliminated a large part of the hand labor in these larger building operations and are depending to a greater extent on road machinery.

Mr. ANDERSON. I have seen some of this road construction, and, as you say, it is really surprising how few men they sometimes use. I am rather under the impression that that machinery becomes more automatic as time goes on.

Mr. MacDONALD. Yes, sir.

Mr. ANDERSON. And the amount of labor constantly grows less.

Mr. MacDONALD. Yes, sir; that is true. Within the last year machines have been placed on the market that have done away with a large amount of expensive hand labor in connection with the building of the higher-type roads.

Mr. ANDERSON. I take it that it requires the construction of a considerable stretch of road to justify the use of machinery of that kind; does it not?

Mr. MacDONALD. No; not so much, on the higher-type construction. We do not think it is advisable at present to expend too large an amount on machinery, but contractors are justified in using a full complement on a five or six mile contract, and with a small crew that of road would provide a fair season's work. I believe we are to come more and more to the use of automatic machinery and let the contracts in larger units as a result of that tendency. A larger part of the organization of the bureau handling Federal-aid work is in the field. In fact, the greater part of the organization of the whole bureau is outside of Washington. We have here 73, in the Federal-aid highway work, including, in fact, coming out of Washington, whereas there are over 300 people

in the field. That includes all the road work which is being done by the bureau in the national forests for the Forest Service.

Mr. ANDERSON. Are these district field officers usually located in the offices of the State highway commissions?

Mr. MACDONALD. No, sir; they are either located in offices of their own in nearby office buildings or in one of the Federal buildings, if available, in the same city. That is the case in Minneapolis. We have quarters in the post office building. We take offices in Federal buildings wherever we can to avoid paying rent.

Mr. ANDERSON. Is any part of the Federal-aid funds used for the payment of expenses of State highway commissioners?

Mr. MACDONALD. No, sir; none whatever. We have a very concise statement of the way we distribute that 3 per cent fund. Capt. Wilson, have you that before you?

Capt. WILSON. We divide the 3 per cent fund as follows: For the field work on the project statement stage, of which Mr. MacDonald was just speaking, we allow four-tenths of 1 per cent. Then, for the field work on the project agreement stage—that is, the field examination of the completed plans—six-tenths of 1 per cent; for the field inspection of work under construction, which is the larger portion of our work, we allow $1\frac{1}{2}$ per cent. For the field inspection of maintenance we allow one-tenth of 1 per cent; and then for the Washington office and for the people traveling out of Washington, Mr. MacDonald and others, four-tenths of 1 per cent. These added together make up the 3 per cent. We are not expending, and have not expended up to the present time, all the amount which is available. Indeed, so far we have expended only sixty-three hundredths of that part of the 3 per cent fund which under this calculation we assume to be available for expenditure. You remember the law states that not to exceed 3 per cent can be set aside for this purpose.

The CHAIRMAN. In other words, about 2 per cent of the amount available has been expended?

Capt. WILSON. Less than that. We allot it pro rata, considering the relative values of the work.

Mr. ANDERSON. It is the administrative part of the bureau, and no proportion of that at all is paid to the people who are employed by the States?

Capt. WILSON. No, sir; the local inspectors on the work are paid out of the joint funds for the purpose.

Mr. ANDERSON. They are a part of the construction force, I suppose?

Capt. WILSON. They are part of the construction force; and charged to the construction work on the particular job.

Mr. MACDONALD. Does that answer the question?

Mr. ANDERSON. I think that covers what I had in mind. I was just wondering whether this matter was handled the same as Federal aid for extension work and other work of that kind, where I understand that part of the salaries are frequently paid by the State and part by the Federal Government.

Mr. MACDONALD. We do not do that. There is one point I want to make. As you will notice, there is a large part of the 3 per cent fund which we are not using in the preliminary work and in examinations made in advance of construction. We hold this part of our ad-

ministrative percentage to apply on the construction stage. In that connection, in Hennepin County, we recently refused to participate in paying for a considerable stretch of pavement because the work did not conform to the specifications for that project. Our inspector had been over the work frequently enough to know that the construction company had not been putting cement enough in the base. We, therefore, refused to participate with the Federal-aid funds for that stretch of road. In the next contract, in which the same company was interested, there was no difficulty whatever in getting the work entirely in accordance with the specifications. We went over that case with the State highway department and had its full approval in deducting the amount.

There is one other point that should be made; that is, I think we will have to expend the remaining portion of this percentage in inspecting these Federal-aid roads from time to time to see that they are maintained in accordance with the provisions of the law. The law provides that if the roads are not maintained we shall refuse to participate in further assistance from the Federal-aid fund in the State until the roads are placed in proper condition. It is the only method that we have of assuring proper maintenance. To keep in touch with the condition of the roads built we will probably have to spend the balance of the 3 per cent.

Mr. ANDERSON. Do you feel that your experiments have gone far enough now so that your knowledge is sufficient to secure the construction of roads which will stand up under heavy traffic?

Mr. MACDONALD. I believe that we are building the best road surfaces in the world to-day and that they will come as near meeting that condition as any roads that are being built in the world. We have not the solid old grades that France has. The system of roads that France built under Napoleon, which proved so successful during the war and carried the heavy traffic imposed upon them, was successful only because of the great depth of stone which had been built into them in the many years since their construction. As a matter of fact, we are building better road surfaces in the United States than the roads which carried that traffic. Some of those old grades were constructed of 42 inches of stone and foundation stone (one of our men actually dug through 42 inches of stone), so that it is possible to understand why those roads held up under any load placed on them, but the surfaces went to pieces rapidly. On the road from Bar-le-duc to Verdun—the one that saved Verdun, I believe—it is said they used in maintaining the surface one man for every 20 feet; that is, one man was stationed on every 20 feet of the road to maintain the top surface while it was carrying that tremendous traffic. But the traffic could always get through because the base held up.

We can build tops that will support present traffic. We know that; but we are pretty sure that these tops are being put on some bases that will not hold up. That is why we are asking for some of this experimental money. In these days we can't afford to build roads 42 inches thick. We want to learn how to build much lighter foundations that will be so well drained that they will be proof against frost: that is, we want to get the water out of the roads and keep it out. If we can do that, after that there is no doubt that we can put on a top surface that will support these loads.

In every one of the failures of the better type of roads, illustrations of which I showed you this morning—not the old roads, which were not built for the heavy loads we have now, but the brick and concrete roads—there have been no failures with the exception of foundation failures. We want to begin all over again teaching and instructing people to build grades for the roads; and we really think that there will be more progress made along that line than in the improvement of surfaces. That is one reason why we do not favor the placing of high-cost pavements on new grades of some types of soil, such as heavy clay. We prefer to build, at first, a gravel or a sand-clay road or some other road of that type which will last for a number of years—two, three, four, or five years—and will give some service to the public in wet weather and good service in dry weather. Such a road can be maintained during the time the grade is seasoning, and, ultimately, when the grade has settled, if the traffic warrants, we can build a higher type of road.

Mr. ANDERSON. How long do you think you will have to continue this work?

Mr. MACDONALD. Continuously.

Mr. LEE. That is—

Mr. MACDONALD (interposing). That is, assuming that the Federal-aid program is extended along the same lines, we would have to continue the supervision.

Mr. LEE. I think that is a good idea. I think the most serious thing in road building is maintenance.

Mr. MACDONALD. And so do I. In one or two cases it has been necessary to threaten to cut off further allotments in order to get repairs made. But our organization is not only cooperating with the State departments in building roads; we are also doing everything we can to develop the idea of highway engineering as a profession and to encourage the development of efficient highway organizations in the States. We are limiting our organization in the States and trying to develop State initiative by not doing anything that can be done by the State organizations. In some States we need more inspectors, but we have only one man that we call a senior highway engineer, who deals directly with the State officials. In the larger States these men have one or two assistants to watch the progress of Federal-aid work. Our intention is to work as intimately as possible with the State highway departments through a limited number of engineers of the higher class, who will be able to advise and bring real engineering experience to the general supervision of the work. We expect the States to furnish adequate organizations of their own to handle the detailed supervision. The States employ men such as rodmen, chainmen, transitmen, and the inspectors, so that our organization is very small as compared with the organization that the States have on the work.

Mr. ANDERSON. Do you find that the organizations in the States are usually pretty efficient, a pretty efficient body of men, and that they are able to carry out the work satisfactorily?

Mr. MACDONALD. The efficiency of the individual State highway departments depends to some extent upon the length of time it has been organized, and to a very large extent upon its support funds. In general, the State highway departments have developed very much

as an individual does, and all of the older established departments are giving excellent service and are composed of high-class men. Some of the younger departments must develop better organizations as a whole, but practically all the States are placing first-class engineers at the head of their engineering forces, and these are the men with whom we deal principally in the Federal-aid work. There is a serious lack of qualified inspectors, and it will be necessary to develop a large number of young engineers who are qualified to handle field work and to take over the work of inspection on construction.

Mr. ANDERSON. To what extent is it possible to check up and correct any defects in efficiency that may exist in the work?

Mr. MACDONALD. First, the plans, specifications, and estimates for road work on which Federal aid is asked are checked by the district engineer and his assistants. In practically all cases this consists of an examination, usually in company with a representative of the State department, of the road proposed for improvement when the proposed plans are nearing completion, and a check in the office of the completed plans to ascertain the general accuracy of the work and the estimates which have been made of the quantities on which the contractors will submit bids.

Mr. ANDERSON. Do the State highway departments have good engineers?

Mr. MACDONALD. In general, the State highway departments either have now or are building up a force of competent engineers. Many of the State departments are large and well supported, and the States in general are pursuing a more liberal policy in advancing the scale of salaries for competent engineers than the Federal Government. In fact, States and counties both are in many places attracting by much higher salaries very competent men from our own forces. As an illustration, our district engineer for the eighth district, which is composed of the entire States of Tennessee, South Carolina, Georgia, Alabama, Mississippi, and Florida, has resigned a position with this bureau which paid a salary of \$4,000 to accept a salary of \$7,500 as engineer for a single parish in Louisiana.

In my judgment, the Federal-aid law has given the States the best possible incentive to pass advanced legislation providing for highway improvement and excellent engineering services in the conduct of the work. The financial aid, while it has been a great stimulus, is not the greatest help the Government has given the States through the Federal-aid legislation. The greatest benefit consists in the better highway laws that have been passed in conformity to the requirements of the Federal-aid act and in the ideals of highway engineering which are being rapidly set up for the country as a whole. When the Federal-aid act was passed there were a number of old, well-established highway departments which had brought highway engineering to a high plane; in their own States they were rendering an excellent service, and their influence was extending to other States. But the growth was slow. There were many States in which the highway departments were small and poorly supported and were, in fact, fighting for existence against influences which sought to destroy their effectiveness. In a considerable number of States there were no State highway departments. These conditions are now generally changed. If the Federal-aid act had accomplished nothing else than the estab-

lishments of the better control of highway matters through the State highway departments and the strengthening of these departments, it would have been well worth while.

I feel that the highway situation in the United States is being rapidly composed, so that the men who render honest and efficient service in the State highway departments will not be displaced through political preferment, and that tenure of office will be decided by the character of the services which they render the public. I believe that among the men who are connected with the State highway departments the Federal-aid act is generally considered to have been of the greatest assistance possible to them in placing the work on a firm and substantial foundation. It must be remembered that up to the present time there has not been an opportunity to accomplish a great deal of actual road construction, but neither has any considerable part of the money been expended. In fact, under the terms of the act, it can not be expended except for actual road construction. There is a very large amount of the preliminary work out of the way; the States are generally ready to let contracts as fast as it seems desirable; and I anticipate that this next year will show a very marked result in the building of serviceable highways all over the United States.

Mr. RUBEX. I want to ask some questions along that line that may have already been covered. I did not come in until after the opening of the hearing after lunch. There are many people that seem to think that the work would have to be done in order to receive all the money from the Federal-aid appropriation, and consequently the States won't be able to use all their quota. Have any of the States used up the quota which has been allotted to them?

Mr. MACDONALD. The State of Washington is fully up to its program; that is, by the 1st of next July it will have expended every cent of Federal-aid money and really more.

Mr. RUBEX. What is the condition of the State of Missouri?

Mr. MACDONALD. The State of Missouri has not—

Mr. RUBEX (interposing). The point I want to bring out is this: My State is just beginning to wake up, and nearly every week some county votes bonds or some road district votes bonds; and in my own district, within the last two or three months, five or six counties have voted from two hundred and fifty to four hundred thousand dollars' worth of bonds; and a great many of the road districts, which under our law have authority to do this, have voted bonds. It is going to take a good deal of time for them to get under way. They have got to sell the bonds, and they are doing that very readily. They have got to survey the roads and have the approval, and they have got to go through a lot of routine work, and it will take a number of months to do that. The question that occurs to me is this: May not a good many of these States get in a position where, when they are really just coming around to the work, they will have voted the bonds and done all of the routine work and all of that sort of thing, and yet won't be able to use the money on the roads until the 1st of July comes around and it may lapse?

Mr. MACDONALD. The Treasury takes a rather liberal view of that situation. If the county, or the State, has definitely set up a project, and the money is appropriated to it, the Treasury con-

siders it expended; so they actually do not have to do the physical work.

Mr. RUBEY. You do not have to build the roads, then?

Mr. MACDONALD. No.

Mr. RUBEY. That is the point I wanted to get at.

Mr. MACDONALD. That actual work, in many of the States, is really about two years behind. You see, we lost two years during the war, and we had about a normal program provided for, so that I believe we will have to move ahead the period during which this money is available for one or two years.

Mr. RUBEY. I have had some letters from my people and some letters from the State highway commission expressing the fear that, as the people are voting bonds and getting ready for the work of building hard roads, they are going to use up their quota; we are getting many letters from Missouri, and other Members of Congress are getting letters from other States requesting us to see that Congress continues the appropriation.

Mr. MACDONALD. That matter can be arranged so as to make the Federal-aid money available for some time in the future, perhaps until year after next. We can provide for the continuance of the Federal-aid program. The States should know what money they are going to have available at least one year before it is available, in order that they may make necessary preparations for its expenditure. We do not need any more money to spend during this fiscal year, and there are only a few States that could use much more during the next fiscal year; but they ought to know what they are going to have so as to be able to make plans and specifications and be ready for the year after next, and I think, if the money could be made available for a year from next July, that that should be done, and that would be in time for most of the States.

The CHAIRMAN. If a county votes down hard-surface roads, will they be deprived of the Federal funds as well as the funds obtained from automobile licenses?

Mr. MACDONALD. Of the first 5,000 miles of project executed, 74 per cent are either earth, sand-clay, or gravel roads.

In certain special cases we have said, where the traffic is very heavy, that we would not approve a gravel road or a sand-clay road, because they would be torn up by the traffic. As a general proposition, however, we have approved more miles of low-cost roads than we are approving of the most expensive roads.

The CHAIRMAN. Then it is safe to say that the department has not committed itself as to any particular road?

Mr. MACDONALD. Absolutely.

The CHAIRMAN. That, generally speaking, is left to the discretion of the people in the localities where the roads are to be built?

Mr. MACDONALD. Yes, sir. The record, as I see it, is a very good one in that respect. By the way, I have here a very detailed statement as to the exact number of miles of each class of roads which each of the States has proposed for construction in each fiscal year—if you desire to have it in the record. We are not committed to any type, and we are trying to rely entirely on this one requirement in the law—that the road must be substantial. We consider the construction of earth roads, under certain traffic conditions, as substantial construction.

The CHAIRMAN. Will you give us some details as to the type of gravel, sand-clay, and earth roads required?

Mr. MACDONALD. You want the description of about the maximum and minimum requirements?

The CHAIRMAN. In a general way, what would be required if you had an application to contribute funds to the building of a road in the country?

Mr. MACDONALD. May I ask Mr. James, the assistant chief engineer, to give you the maximum and minimum widths, thicknesses, etc.? He has those better in mind.

The CHAIRMAN. We will be pleased to hear Mr. James.

Mr. MACDONALD. Tell about the requirements of our standards, Mr. James, if you please.

**STATEMENT OF MR. E. W. JAMES, ASSISTANT CHIEF ENGINEER,
BUREAU OF PUBLIC ROADS, DEPARTMENT OF AGRICULTURE.**

Mr. JAMES. Each project, Mr. Chairman, is originated in the State highway department; they not only make their own selection of type but furnish us, in the application, the data on which they base that selection. In other words, they come to us with a justified application.

The CHAIRMAN. First, the counties make application to the State?

Mr. JAMES. Yes. That is a thing of which we do not always have complete cognizance, because we deal directly with the State highway departments; but after the counties make application to the State, the State reviews the whole matter, and it comes to us with a definite recommendation.

The CHAIRMAN. If the State approves the project, it comes to you?

Mr. JAMES. Yes, sir; it comes to us, thoroughly justified in ninety-nine cases out of one hundred.

The width of earth road, which predominates, is from 22 to 30 feet between ditches. Occasionally there are widths that are narrower for some particular purpose. There is a road that I have in mind in California that was made narrower, for instance, because it connected directly with a forest road which we are building. It connected it with another part of the road built under the State, and there was no particular reason why there should be a difference in the widths of the roads, as the traffic inside and outside the national forest was practically the same. There are a few cases where grades are wider than 30 feet.

The crown of an earth road will be from three-fourths of an inch to 1 inch to the foot; that is, a crown that can be built with the ordinary earth-road working machinery, machine graders, elevating graders, etc., that are used. As far as possible we design the cross sections so that the grading machine can cut the ditches.

The CHAIRMAN. Just what do you mean by ditches?

Mr. JAMES. The side ditches, for drainage purposes. Of course, the work, in addition to the mere construction of a grade, varies a great deal. Take the work in Iowa. Very often on earth roads they will install very substantial drainage—subdrains, you call them; tile drains for subdraining the soil. That is done in cases where they contemplate putting expensive surfaces on the grades at

a later date, just the same as under city pavements they will lay gas mains and carry them to the curb, in order to be prepared for future pavements that they wish to put in. The drainage structures under such roads are usually made permanent under an earth road just the same as though it were a higher type, such as concrete or vitrified brick; and all bridge structures also are put in as nearly as possible in permanent form.

When we come to the surfacing of earth grades, the conditions are controlled very largely by the immediate traffic and the prospective future traffic. There are conditions, for instance, in Minnesota, where 1,200 yards a mile are quite uniformly specified on their gravel-road projects. That provides only about 4 inches of gravel on those roads. But they have a pretty well organized system of construction there, and they reduce the rolling necessary by laying 4 inches of gravel this year, and as soon as necessary thereafter an additional 800 or 1,200 yards to the mile as maintenance work. The Government does not cooperate in any of that additional work. Those roads have from 4 to 8 or 9 inches of gravel.

The CHAIRMAN. All put on at one time?

Mr. JAMES. About 4 or 5 inches at a time. We use two courses for a greater depth.

The CHAIRMAN. Is it an advantage to spread it thin?

Mr. JAMES. Yes, and let it compact. That is the reason why the Minnesota commission adopts their scheme of placing 4 inches the first time and letting it come down under traffic and solidify well before putting on the next course.

The CHAIRMAN. Then they use a King drag?

Mr. JAMES. Or the grading machine. That is better controlled, has a larger wheel base, and is truer in its operation.

The CHAIRMAN. What are the most important factors in building a sand-clay or gravel road; has drainage anything to do with it?

Mr. JAMES. For an earth or gravel road the drainage is the most important factor, because you practically have no surfacing at all on an earth road.

The CHAIRMAN. You can not build a good road without drainage?

Mr. JAMES. You can not; and it is the whole thing in an earth road; for, even if you moisten an earth road with a bucket of water, you create a mudhole.

The CHAIRMAN. How much of a drain is required in the average country?

Mr. JAMES. That is a question that can not be answered by any definite statement. There are sections of the country where we have a great deal of trouble in getting them to do adequate drainage, because they are not familiar with tile draining for agricultural purposes. As I recited a moment ago, Iowa subdrains her roads quite generally in every place where the engineers see any need of it. In the Southern States, where they seldom use tile on the land, they do not realize the need of it on the roads.

The CHAIRMAN. What do you do where they neglect the drainage?

Mr. JAMES. We do all we can to get them to install it.

The CHAIRMAN. Would you reject a project if no drainage was provided?

Mr. JAMES. We would insist that the plan be revised to include those features. Our procedure arranges for such things. Where

necessary, we go over the drainage areas and see that the culverts are properly sized and that subdrains are put in of proper size and design.

The CHAIRMAN. You require them to bring it to a certain grade?

Mr. JAMES. Yes. That certain grade can not be set by rule of thumb. It varies with the location—with the topography of the country.

The CHAIRMAN. You decide that?

Mr. JAMES. Yes; that is gone over very carefully. Recently we have had a number of our projects where the review of the grade line has been an extremely important matter, where we have gone across marshes and swamps, where our men have felt that the grade was a little too high, and that the expense could be reduced by lowering the grade. Very often, on the other hand, it is a question of raising the grade.

The CHAIRMAN. Do you approve projects where the roads are to be surfaced with gravel?

Mr. JAMES. Yes; we have even approved projects that are dirt roads, but in practically every case, and in every case since the middle of last summer. I think, we have had a definite showing from the State authorities of the conditions surrounding that particular construction. In the first place, they undertake to make it substantial and permanent as far as it goes and give us some indication that they are going to provide a better surface or some surface at a later date. For instance, a great many of those cases are where they expect to put down very substantial surfaces, expensive surfaces, that should not be placed on heavy fills until the fills have been thoroughly compacted and settled during a winter or two—not simply artificially compacted by rolling but settled under the weather. In those cases, of course, we are glad to approve the projects as earth projects. But we must have a reasonable showing from the State or county that they will come through with the revision of the project, adding the new surface at a later date.

The CHAIRMAN. When you speak of a revision, does that require a new application?

Mr. JAMES. No; it does not. We have arranged to expedite and reopen a project by simply a letter and a revision of the estimate.

The CHAIRMAN. You specify as to the culverts and bridges?

Mr. JAMES. We do not specify. They have their own typical specifications.

The CHAIRMAN. You require certain standards?

Mr. JAMES. Yes; but we have not undertaken to impress uniform standards on all the States. That is a condition that would create friction. Our country is too large to standardize. You could not make things uniform from California to the Atlantic coast.

The CHAIRMAN. Do the States regulate it?

Mr. JAMES. The States regulate that in most cases.

Mr. MACDONALD. That statement ought to be made clear. In every State we proceed under certain standards, but those standards may vary between the States. There is no arbitrary standard that we have adopted.

The CHAIRMAN. Then it is really up to the locality to determine what type of road shall be built, although in some certain instances, of course it is necessary for you to exercise discretion in the matter?

Mr. JAMES. In the thousandth case we have to exercise an arbitrary decision.

The CHAIRMAN. Thank you, Mr. James.

STATEMENT OF MR. THOMAS H. MacDONALD, CHIEF OF THE BUREAU OF PUBLIC ROADS, DEPARTMENT OF AGRICULTURE—Continued.

The CHAIRMAN (continuing). Mr. MacDonald, you said something about the price of cement in Illinois.

Mr. MACDONALD. \$1.70 was the contract price last year—that is, net price—and they have let it at the same price this year.

The CHAIRMAN. At the factory?

Mr. MACDONALD. At the mill.

Mr. LEE. \$1.70 a barrel?

Mr. MACDONALD. Yes, in cloth sacks; and that is the mill price; probably the average cost, delivered on the work, would be a little above \$2 net.

The CHAIRMAN. What is the price in Indiana?

Mr. MACDONALD. About 10 cents higher in Indiana; but the contractors have absorbed most of that difference, apparently, because we do not find any marked difference between the contract price for the same character of work in the same months. In fact, the Indiana prices have been a little lower in some instances than the Illinois prices in the same month.

The CHAIRMAN. How does that price compare with the price in Iowa?

Mr. MACDONALD. The price in Iowa has been a little higher; in fact, so high that they have rejected some bids recently.

The CHAIRMAN. In the projects the estimates are made on the price of cement and gravel?

Mr. MACDONALD. Yes, sir; and labor.

The CHAIRMAN. If you find them in excess of the prevailing prices, do you reject the projects?

Mr. MACDONALD. Yes, if there is no reasonable explanation of the variation from the estimate. As a general proposition our prices for road work have increased less than the general prices of commodities. We still have some difference between the level of road prices and the level of other commodities. I have been expecting to see us reach that level this coming year, but our contracts so far have not shown a rise equal to that of the index of commodities.

The CHAIRMAN. In other words, we may safely state that every project is carefully checked up?

Mr. MACDONALD. Yes, indeed sir. We frequently find criticisms that the road costs are very high, and I think there are some specific instances where they have been high. We are building roads out in Washington that will cost nearly \$40,000 a mile for grading through the mountains.

The CHAIRMAN. About what is the average cost now of the ordinary surfaced road of the various types?

Mr. MACDONALD. The average estimated cost of the cheapest type of Federal-aid road planned in the projects executed up to the present time is \$4,096.

The CHAIRMAN. Is that one-half or the total cost?

Mr. MACDONALD. That is the total cost.

The CHAIRMAN. \$4,000?

Mr. MACDONALD. Yes, sir.

The CHAIRMAN. That is a surfaced road?

Mr. MACDONALD. No, sir; that is an earth road; but the cost includes all drainage structures. It includes the grading, tile drains, culverts, and all bridges exclusive of those of more than 20 feet span.

Sand clay, \$4,241. You will note that there is very little difference between the dirt and sand clay, because in the sand-clay type we generally do not move as much dirt; gravel, \$3,692; macadam, \$11,152; macadam, mat top, \$7,501. The explanation of the difference is that the mat top, in many cases, has been placed over the old macadam roads. In those cases the cost does not include the cost of the base. Bituminous macadam, \$24,618; bituminous concrete, \$24,874; Portland cement concrete, \$30,783; brick, \$42,578; and miscellaneous, \$5,018.

The CHAIRMAN. Is the construction of roads drawing heavily on farm hands?

Mr. MACDONALD. It is my judgment that we are not drawing farm hands from the farms for this work; but we propose to watch that phase of the subject very carefully during the coming year. It is my belief that the building of roads is going to do more to keep a supply of labor on the farm than any other one thing that we are doing now in a public way.

The CHAIRMAN. That is in reference to the future, but during construction how much is a man and team paid?

Mr. MACDONALD. For a man and team about \$8 a day.

The CHAIRMAN. Not \$12 a day?

Mr. MACDONALD. \$8 a day—\$7 to \$9. I know of no cases where contractors have paid as high as \$12. Indeed, there is a growing tendency to abandon teams altogether and resort to the use of motor trucks.

The CHAIRMAN. I have been told that in certain sections some renters were contemplating giving up their farms to work on the road; that they could make more (from \$8 to \$10 a day) on road work than from working a farm on shares.

Mr. MACDONALD. I know that they have had to reject some contracts in Iowa because the prices in the bids were too high. I believe that we will not be able to build as large a program of roads as there is money to build, and I do not believe we should force the program there if the prices are too high. I think, however, that the condition we have there results from a general lack of labor in the State.

The CHAIRMAN. I take it that conditions are much the same in all localities.

Mr. MACDONALD. We do not find it so. Pennsylvania seems to have plenty of labor this year, and, in fact, I believe we have had more difficulty in a few of those Middle Western States than in any other States so far as labor is concerned.

The CHAIRMAN. What has been your experience with the hard surfaced roads? Do they last longer than the gravel and sand-clay roads, with the same expense in keeping them up?

Mr. MACDONALD. Yes; they do.

The CHAIRMAN. We have a hard surfaced road between Washington and Baltimore, which went all to pieces in places during the winter. What would have happened with a properly drained gravel road?

Mr. MACDONALD. It would not have carried the traffic. But there are only sections of that road that did go to pieces. It is really surprising that some sections held up as well as they did under the traffic, for one of our engineers has found the surface to be not more than 3 inches thick in places.

There were sections of that road where our engineer tells me that they were continually placing gravel or broken stone and were still unable to hold the surface under the traffic. They have now laid a concrete surface, or are planning to do so. The average maintenance on that road has been about \$1,000 per mile per year. I presume that the annual maintenance cost of the concrete sections is not over \$50 per mile. Do you have any figures on that, Mr. James?

Mr. JAMES. Not on the surface alone, but I think it is probably not over that.

Mr. MACDONALD. There are sections of concrete on that road where we estimate that the expense of maintaining that concrete surface is not over \$50 per mile per year, while the general average cost for the whole road, most of which is macadam with tar surface treatment, is about \$1,000 per mile.

The CHAIRMAN. Then the breakage in many instances is due to the construction, is it?

Mr. MACDONALD. Yes, sir. This road is, for the most part, of the "in-between" type, which I have referred to before as generally unsatisfactory for modern traffic, and the crust is not heavy enough to carry very heavy traffic. The destructiveness of the traffic, you see, is measured not so much by the number of units as by the maximum weight of vehicle. For example, a truck going over a road may put it in such condition by breaking the top crust that every lighter load that comes over it will help to destroy it.

The CHAIRMAN. In your opinion, then, what is the best constructed road, and what material would you suggest for a hard-surfaced road?

Mr. MACDONALD. My answer to that would be governed by the conditions which prevail locally. Every road engineer has to adjust his road construction to the conditions which prevail in the community in which he builds his roads. If he has hard rock and cheap cement to use, and can build a concrete road cheaper than any other type of first-class road, he naturally would select that type. If he has a low rate on asphalt and a suitable grade of stone, he might decide on bituminous macadam or bituminous concrete; or if brick is manufactured nearby and consequently is cheap, the brick road might be the type he would recommend.

It all depends, Mr. Chairman, on the conditions prevailing locally. Any of the standard pavements, placed on a well-drained, well-graded earth road, in my judgment, will carry the traffic we have now, if properly regulated. But you can not run a 7-ton truck equipped with solid tires, at a tremendously high speed, over any of the roads we are now building and expect them to stand it. Even the best constructed railroads would be sorely taxed by the traffic that some of the

manufacturers want to put on the highways. I think we may come, presently, to national regulation of the weight of trucks which we shall allow to use our highways. But, under all reasonable traffic, any of the standard pavements, such as asphalt or bituminous concrete on a good base, or Portland-cement concrete, or brick, will give good service, if properly built; and the local conditions governing the cost will determine the selection of type if everything is honest and aboveboard. If it is a question of promotion, almost any type may be expected to prevail.

The CHAIRMAN. And the matter of drainage?

Mr. MACDONALD. Yes, sir.

The CHAIRMAN. I have preached drainage so long that I can not get away from it.

Mr. MACDONALD. Mr. Chairman, I think we shall have to preach drainage under some other title so that people will think it is new.

The CHAIRMAN. I wish you would get them to see it.

Mr. MACDONALD. Every road engineer in the country when he writes a paper begins with the statement that drainage is the most important thing, and then he goes out and builds a road that does not have drainage.

The CHAIRMAN. You suggested that eventually road builders may manufacture their own material.

Mr. MACDONALD. I think so.

The CHAIRMAN. Can you approximate the cost?

Mr. MACDONALD. A good many of the cement mills, I imagine, cost at least \$1,000,000.

The CHAIRMAN. Is that the cost of building them?

Mr. MACDONALD. Yes. Really it is a serious question.

Mr. VOIGT. Did I understand you to say that it would take a million dollars to erect a cement plant?

Mr. MACDONALD. Some of the plants have cost about that, but it is pretty hard to estimate what the cost would be now. I would have to get more recent figures than I have, but it would probably cost \$500,000 even for a small plant; that is, for a 1,000 or 2,000-barrel plant. You see, cement, in order to be manufactured commercially, has to be manufactured in large quantities. It is like coal or any of the other very heavy commodities in which you are dealing with low-cost raw materials. You have to handle a large number of units at a low amount per unit, in order to keep down the cost of your manufactured product.

Mr. VOIGT. If you were able to turn out only 100 barrels a day, it would be a losing proposition, would it?

Mr. MACDONALD. It would not be practicable. It would cost you \$10 or \$15 per barrel.

Mr. ANDERSON. The unit cost would be so high?

Mr. MACDONALD. Yes. I think I can make that clear. The raw materials, clay and rock, are very inexpensive materials, worth usually less than \$1 per ton. But it is only after they have been dried and ground and burned together in proper proportions to make cement, and then reground, that they have value. To do this, very heavy and expensive machinery is required; and it requires about the same machinery to turn out 100 barrels as it does to make 1,000 or 2,000 barrels.

Mr. VOIGT. You have got to have the clay and the rock at one point to make it successful?

Mr. MACDONALD. Yes, to make the cement economically, although there are a great many plants that are operating and shipping one material some little distance. I know of some plants that are shipping stone perhaps 30 or 50 miles. But such a condition does not make for low cost.

The CHAIRMAN. I think we have gone over this matter pretty thoroughly. We will take up the next item.

Mr. MACDONALD. The next item is the irrigation item. I am very anxious for the members of the committee to hear Mr. Teele on that item. Mr. Teele has taken leave from the bureau to take charge of some of the irrigation investigations for the Census Bureau. I have asked him to come over and point out some of the problems in the work, because there are some problems that we feel are so serious as to justify us in asking that the appropriation be placed, at least, on the prewar basis.

The CHAIRMAN. Did we cut this item last year?

Mr. MACDONALD. Year before last.

The CHAIRMAN. We rejected the increase?

Mr. HARRISON. You cut \$20,000 out of it in the appropriation for the fiscal year 1919.

The CHAIRMAN. Did you estimate an increase last year?

Mr. HARRISON. No, sir.

Mr. MACDONALD. We believe we have been very modest on that item, Mr. Chairman.

The CHAIRMAN. You or Mr. Teele might state briefly what you have in mind.

STATEMENT OF MR. R. P. TEELE, IRRIGATION ECONOMIST, BUREAU OF PUBLIC ROADS, DEPARTMENT OF AGRICULTURE.

Mr. TEELE. Mr. MacDonald suggested this morning that the reconstruction of irrigation systems in the West was, perhaps, the most important field—

The CHAIRMAN. You are now discussing item 57, "for investigating and reporting upon the utilization of water in farm irrigation," etc.?

Mr. TEELE. Yes, sir. That needs one preliminary statement. You may be familiar with the fact that in the West there is an unlimited supply of land which is fertile and tillable except for the lack of a water supply, and that for that reason most of our efforts have to do with economizing the water supply and making this supply go further. There is an unlimited supply of land with a very limited supply of water. Reconstruction, of which Mr. MacDonald spoke, consists in advising communities as to rebuilding and reorganizing their irrigation systems, which involves every line of work which is specified in the law providing for the work of this division. The historical development has been the building of small ditches along the river bottom, a multiplicity of them, still higher up on the benches, more but larger ditches, and still above that other ditches, so that in a typical river valley we have several parallel ditches. The lower land has become swampy in many cases. These

ditches are all controlled by different organizations, so that there is a lack of cooperation there. The laws perhaps encourage that situation, so that the reconstruction involves every phase of the work which is enumerated in the appropriation law.

The CHAIRMAN. Do you tell the farmer how to do it?

Mr. TEELE. It is a community affair, because a very large part of the irrigated land is served by a works which waters more than one farm.

The CHAIRMAN. Do you go where you are called?

Mr. TEELE. Yes; but we do not deal in this particular work with the individual, except as he is a member of the community, a member of an organization.

The CHAIRMAN. How many will be needed to make up the number required?

Mr. TEELE. They run all the way from little ditches watering one farm to ditches watering thousands of farms. In southern California we have one ditch that serves 500,000 acres.

The CHAIRMAN. There are smaller ones?

Mr. TEELE. A great number of smaller ones. Probably 90 per cent of the ditches, in number, are small ones that water from one to three or four farms. In acreage they do not represent a very large percentage.

The CHAIRMAN. Do you tell them how they can make use of the watershed at a saving?

Mr. TEELE. In this reorganization work the procedure is a good deal like this: We go into a community and look into the existing conditions, find the swamp lands and the multiplicity of ditches with antagonistic organizations and rights, and attempt to show them that they will be better off to unite and rebuild their works, eliminate the duplication, and build modern, up-to-date works, draining their lowland and transferring the water to the highlands. That is largely a matter of making surveys and giving advice, and it involves a great deal of persuasion in getting people into this. In some places it involves a revision of the legislation—in every case a revision of the organization—to get this multiplicity of organizations into a single organization. If we can make arrangements to get the water from the swamp lands up onto the higher lands there is a great economy, as this makes available the surplus water for new lands.

The CHAIRMAN. Do you give advice as to flooding land?

Mr. TEELE. We do that as another feature of our work, advising individual farmers as to irrigation.

The CHAIRMAN. Do you go on the premises to make a survey of the watershed?

Mr. TEELE. We have done that in typical cases. We do not make a survey of every man's farm. We go into different communities and work with the men of the States Relations Service to advise them in their meetings as to irrigation practice. We do make surveys of individual farms, because we find under their systems of distribution there is very great waste in applying the water in the wrong way.

The CHAIRMAN. Is there any benefit or advantage in flooding the land in the spring after the melting of the snow?

Mr. TEELE. In many cases they can raise one crop of hay or grain by that type of irrigation.

The CHAIRMAN. Is that done much?

Mr. TEELE. Yes; many of the streams have a large flood flow early in the season, and later a limited flow, and in such cases they can do that type of irrigation.

The CHAIRMAN. They dam up the stream and in that way flood the land along the sides?

Mr. TEELE. They run ditches out in a general direction, paralleling the river for a considerable distance, and flood the land in between.

This map [indicating] shows the territory where we are working.

The CHAIRMAN. Kindly mention the States so that they will be in the record.

Mr. TEELE. Arizona, California, Colorado, Idaho, Kansas—

The CHAIRMAN. The Western States?

Mr. TEELE. It covers all the Western States.

The CHAIRMAN. West of the Missouri River?

Mr. TEELE. Yes; including Oklahoma and Texas.

The CHAIRMAN. Do you do anything in the Dakotas?

Mr. TEELE. We have done; yes.

The CHAIRMAN. Both in North and South Dakota?

Mr. TEELE. North and South Dakota; yes.

The CHAIRMAN. Have you done anything east of the Red River?

Mr. TEELE. No; we have nothing east of the Red River. I will say this, that the Drainage Division is doing some irrigation in the East.

The CHAIRMAN. You operate only in the semiarid districts?

Mr. TEELE. The Drainage Division has been doing it in the East to some extent.

In addition to this revision work—

The CHAIRMAN. That map indicates that you are operating in practically every State west of the Missouri River?

Mr. TEELE. Yes, sir. We have taken up large reorganization projects such as I have mentioned in California, Utah, Nevada, and Colorado. In addition to that, we have what we have put on this map as pumping investigations. In a great many of these States there is a very large area, running into millions of acres, in which there is much tillable land, but it has no available water from surface supply, and, if the land is irrigated at all, it must be by pumping from wells. We are working in those sections to develop methods of pumping, methods of sinking wells, strainers which will keep the sand out of the wells and let the water in, and showing what can be done in reclaiming those very large areas which have no surface water supply.

The CHAIRMAN. Have you found it practicable to pump water from wells?

Mr. TEELE. Yes, sir.

The CHAIRMAN. What distance can the water be lifted?

Mr. TEELE. In southern California, for the orange orchards, they are lifting water 300 or 400 feet. For hay and grain growing it can not be lifted more than 20 or 30 feet, depending on the prices of fuel and prices for hay and grain.

The CHAIRMAN. How much would lifting water 15 or 20 feet cost per acre?

Mr. TEELE. That varies, of course, very largely with the local prices for fuel.

The CHAIRMAN. Say \$3 for coal.

Mr. TEELE. And also the quantity of water that you are using. They are almost all using gas or oil engines or, as in southern California, electric power which they buy from power companies. They are spending in southern California in some places as high as \$150 an acre a year for water—just for one season.

The CHAIRMAN. What would it cost if you had to lift the water 15 feet?

Mr. TEELE. That could be done for \$3 or \$4 an acre for a single irrigation.

The CHAIRMAN. And furnish an adequate supply to the land for growing alfalfa and grain crops?

Mr. TEELE. That depends, of course, on how many irrigations you give it; it depends on the rainfall and also on the underground water conditions.

The CHAIRMAN. Say 11 or 12 inches of water?

Mr. TEELE. That would be put on in two or three irrigations. It would cost all the way from \$3 or \$4 to \$10 an acre, according to the local prices. Of course that makes possible the growing of two or three crops of hay.

The CHAIRMAN. We were told some years ago that you were boring wells in one of the Dakotas.

Mr. TEELE. No; our bureau has never bored any wells.

The CHAIRMAN. Fifteen or sixteen years ago the department told us of sinking some wells in one of the Dakotas.

Mr. TEELE. I do not recall that our department ever sunk any wells in Dakota.

The CHAIRMAN. Do you sink wells?

Mr. TEELE. We never have been engaged in sinking wells. I do not recall any since I have been in that work.

Mr. HARRISON. The Geological Survey is doing that work, Mr. Teele.

Mr. TEELE. The Geological Survey has an appropriation for that work.

Mr. HARRISON. There was a provision inserted in our appropriation bill in the Senate three or four years ago, but we told the committee that it did not belong there.

The CHAIRMAN. For irrigation?

Mr. HARRISON. For irrigation purposes, to discover underground sources of water supply and use the water for irrigation.

Mr. TEELE. There was a discussion in the Senate that Mr. Harrison refers to, and there was a good deal of uncertainty as to the intent of the law—as to whether the work was to be done by the Department of Agriculture or by the Geological Survey.

Mr. HARRISON. The Geological Survey has an appropriation, I believe, of something like \$150,000 for that purpose.

Mr. TEELE. That is for actually sinking the wells. It is not for the purpose for which we are doing this work—demonstrating or determining the feasibility of that type of development—but with the purpose of encouraging the local interests to go ahead and do the work.

The CHAIRMAN. Where land is worth from \$15 to \$50 an acre, would it be feasible to lift the water several hundred feet?

Mr. TEELE. The feasibility, of course, depends on the crops you are going to raise and the value of the crops.

The CHAIRMAN. You can buy land in other localities for less than it would cost you to install the irrigation plant; could you not?

Mr. TEELE. It would depend on local conditions. In the West prices for products are higher than in the East, so that they can stand a higher cost for growing these crops.

The CHAIRMAN. Take Montana. It would not be practicable there to undertake to dig wells—to lift the water to irrigate in Montana?

Mr. TEELE. Not if they continued to raise grain and hay as they have been doing. You can not raise those crops with expensive water. They must be grown with cheap water, water you get from streams.

The CHAIRMAN. Is this money to be used largely where you have been operating in the past?

Mr. TEELE. Yes; it is just an extension of the work.

The CHAIRMAN. You ask for an increase?

Mr. TEELE. Yes; a restoration to the prewar figure.

Mr. MACDONALD. I would like to get this statement into the record at this point: There are 17,500,000 acres in this country actually irrigated; and of this area less than 7 per cent was irrigated in 1919 under Government Reclamation Service projects; and a very large sum has been expended in these Government reclamation projects—about \$118,000,000.

Mr. TEELE. The report of the Reclamation Service for this year places their figures at almost exactly 1,000,000 acres that they have irrigated out of the total of 17,500,000 acres irrigated.

Mr. MACDONALD. That estimate of the acreage irrigated may be changed after we get the census figures, but that, we think, is approximately correct. That means that over 90 per cent of the people who are living on the irrigated lands have received no assistance from the Government except such as we give them through the Irrigation Division of the Bureau of Public Roads of the Department of Agriculture.

Our contact is with the producer on the farm. I want to bring out the point that we are not trying to encroach on the fields of the Reclamation Service or the Geological Survey, but that we are devoting our attention to the application of engineering to the farm and to farm improvement.

If you are through with that item, I would like to have Mr. McCrory, the chief of the drainage work, make a brief statement about the next item, No. 58, in which we are asking for the restoration of the prewar figure, plus an additional amount of \$10,000.

In further reference to our activities, I want to say that we are placing all the activities of the Bureau of Public Roads on a strictly cooperative basis. Our Federal-aid work is handled with the State highway departments of each State. Our drainage work we are extending through cooperation with the States through the colleges; and the same is true of the irrigation investigations in the West. We hope to conduct practically all our rural engineering investigations and the mechanical features of the work through cooperation with the various State colleges.

The CHAIRMAN. In cooperation with the State colleges?

Mr. MACDONALD. Yes, sir. We are trying to place all our work on a cooperative basis. I believe in that as a principle of operation.

The CHAIRMAN. When you speak of cooperation, do you mean that they contribute an equal amount?

Mr. MACDONALD. In Utah and Colorado, in the irrigation work, I believe they contributed about three dollars to our one. But that is the principle. Mr. Chairman, that the States contribute along with the Federal Government; yes, sir.

The CHAIRMAN. They are doing that now?

Mr. MACDONALD. Yes, sir.

The CHAIRMAN. We will be glad to hear Mr. McCrory.

STATEMENT OF MR. S. H. MCCRORY, CHIEF OF DRAINAGE INVESTIGATIONS, BUREAU OF PUBLIC ROADS, DEPARTMENT OF AGRICULTURE.

The CHAIRMAN (continuing). You are discussing what item?

Mr. MCCRORY. Fifty-eight.

The CHAIRMAN. That is "for investigating and reporting upon farm drainage and upon the drainage of swamp and other wet lands"?

Mr. MCCRORY. Yes, sir. I have prepared this map [indicating] which shows the area of swamp, wet, and overflowed lands in the States east of Colorado. The large, yellow rectangle indicates the area of such land in each State, the red square the area of which the Drainage Division of the Bureau of Public Roads has made reconnoissance examinations; while the black square in the corner shows the area of which actual surveys have been made. The most recent data that we have collected indicate that there are approximately 166,916 square miles of swamp, wet, and overflowed land in the United States. Of this area the Drainage Division, since it was established, has made reconnoissance examinations of 28,702 square miles and surveys of 11,494 square miles.

The work of the Drainage Division may be divided into two general classes: Our investigational work and our work with communities and individuals. On this map [indicating] I have indicated the principal technical investigations which the Drainage Division has conducted. One of the large problems confronting the drainage interests of the United States to-day is the problem of maintaining the drainage ditches. The bureau has begun investigations on this subject in Iowa, in the lower Mississippi Valley States, and in the Atlantic coastal plain region.

Another line of technical investigation that has met with great favor among the engineers engaged in drainage work are the hydraulic investigations relating to the rate of run-off from drained areas and the coefficient of roughness in drainage ditches. We are receiving more requests from the drainage engineers of the country for additional work of this character than for any other class of work that we are carrying on.

Investigations are also in progress in regard to the subsidence of muck, the durability of concrete tile, the drainage of tillable lands, and the efficiency of drainage pumping plants in various parts of the United States.

We are also working with individuals and communities throughout the eastern part of the United States on a number of different lines of work. On this map [indicating] I have indicated by symbols the States in which different lines of activity have been carried on. Our farm drainage work is indicated by this triangular symbol [indicating]. This work has been done mainly in cooperation with the county agents. The same is true of our terracing work, which is also carried on in cooperation with the county agents. It is our idea that a county agent should be able to handle the simple problems in farm drainage and terracing. When he has a difficult problem he should be given assistance by an engineer.

Mr. ANDERSON. You will have to back up there, because there is no county agent that knows enough to do that, according to the testimony of every other division of the Department of Agriculture. [Laughter.]

Mr. McCrory. I do not agree with that. I have a rather intimate acquaintance with the county agents, and a great many of them are doing very fine work along this line. Take, for instance, the terracing work that was started in Missouri several years ago. That work was initiated by a county agent, Mr. Cook. He knew that the farms in Missouri were being badly washed and gullied and that their value was being largely destroyed, but he did not know how to prevent this. He took the problem up with the State leader and asked for help. They asked the bureau for assistance, and we sent our engineer from North Carolina, Mr. Lynde, to Missouri. The State leader had worked up an interest in three or four counties; only Mr. Cook, however, succeeded in persuading a farmer to let Mr. Lynde build some terraces on his farm. That was three or four years ago. The last report I had from that work was that over 180 farmers had built terraces on their farms in Missouri. One of the big problems all over the United States is to control and prevent erosion of the farm lands.

The CHAIRMAN. How do you control it?

Mr. McCrory. On certain kinds of land it can be controlled almost completely by the construction of the right type of terraces. We are recommending several types of terraces—the bench terrace and the broad-base terrace, either with a uniform grade, variable grade, or level. The broad-base type of terrace, which is cultivated and which can be crossed by farm machinery, has given very good satisfaction. It is used extensively throughout the South and within a few years, I imagine, will be used in the North also. The people of Missouri are taking to it very rapidly, and during the past year we have built some in Pennsylvania; they have, so far, proved successful. We had an interesting letter from the gentleman in Pennsylvania on whose farm we built these terraces last summer. He wrote that there had been a very heavy rain and that he had gone out and observed conditions during the rain. He said that the water that came off the terraced field was practically clear, while the water from the portion of the same field that was not terraced was very muddy. That has been the general observation of farmers with properly constructed terraces.

The CHAIRMAN. Do you build the terrace on the side of the hill?

Mr. McCrory. Yes; on the hillsides. The arrangement depends on the slope of the land. We put them from 3 to 6 feet apart vertically,

and from 30 to 100 feet apart horizontally, depending upon the slope of the land. The terraces look like a series of ridges thrown up across the field. It looks as though they would spoil the field; that is what the farmers think when they first see them; but, instead, they find that they are able to cultivate the terraces, which keep the land from washing away. If you will recall, when you have a heavy rain in western Iowa, the water runs down the corn rows and washes away the soil between the rows during the corn plowing season in summer, and the water is very muddy. By terracing the fields a large part of the erosion might be prevented. I was in Nebraska last spring just after a heavy rain. As I rode along the railroad from Sioux City to Norfolk, Nebraska, in many of the grain fields it looked as though big furrows had been plowed down the hillside. They were simply channels that had been washed out. Such erosion can be very completely controlled by terracing. There are types of gulying and washing for which different methods of control must be used, but on a properly terraced farm the gulying or washing would never be allowed to start. The use of the terrace can do wonders in controlling soil washing.

The CHAIRMAN. When you build a terrace, does the water percolate through the terrace?

Mr. McCrory. The water is held behind the terrace, which is given a gentle slope, and is carried off the field to an outlet of some kind, such as a strip of grass land, an open ditch, or a tile drain.

The CHAIRMAN. They are constructed so that they can be farmed and harvesters run over them?

Mr. McCrory. Any modern machinery can be used on a properly constructed broad-base terrace.

You will recall that several years ago the investigation of irrigation in the humid region was transferred to the Drainage Division for convenience of supervision. We are carrying on a certain amount of work with certain types of irrigation, especially in Florida and along the Atlantic coast in the vicinity of New York City. In addition to that, we are doing a great deal of work with community drainage projects, or drainage districts, throughout the eastern part of the United States.

These, gentlemen, are the principal activities that we are carrying on.

Mr. Anderson. Do you have any connection or relation with the large drainage projects, such as take place, for instance, in the swamp and cut-over lands in northern Minnesota?

Mr. McCrory. Yes, sir; we are working on one project in Minnesota now.

Mr. Anderson. What is your connection there?

Mr. McCrory. That work was initiated at the request of Representative Helgeson and a number of other gentlemen several years ago. We started work on the Red River project, embracing parts of Minnesota, North Dakota, and South Dakota, about a year and a half ago. The progress report on part of the work should be available next month.

Mr. Anderson. Is that a drainage project or a flood-control project?

Mr. McCrory. It is primarily a drainage project. Flood control is only incidental to securing drainage. A certain amount of flood-

control work will be necessary in order to insure the drainage of certain parts of the land. It is a very complicated drainage project, for the river flows north and the headwaters thaw out first and the ice below interferes with the passage of the water from above.

Mr. ANDERSON. What I wanted to know, particularly, is what your contact was and how you got into it; what you had to do with it?

Mr. McCrory. There is a Tri-State Flood-Control Association that was very active at one time in getting the work started, and the work was also requested by Representative Helgeson and the governor of North Dakota.

Mr. ANDERSON. To get at what I want, let me ask this question: Does your man work directly with the drainage organization up there, whatever it is, in cooperation with the State?

Mr. McCrory. At the time we started the work none of the States were in a position to cooperate. The situation in the Red River Valley was this: The War Department had a certain appropriation there to make final surveys. Nobody had any money to make preliminary surveys, and the War Department could not go ahead without a preliminary plan. The Tri-State Flood-Control Association and Representative Helgeson had been trying to get something done up there. I went out to the Red River Valley, went over the situation, and met a number of the interested people. We wanted some local cooperation, and there was a long time during which this was under discussion and arrangements for funds were being made. It was finally arranged that certain counties in Minnesota and North Dakota should furnish the required amount of money, and the department went ahead with the project when those funds were made available.

Mr. ANDERSON. All right.

The CHAIRMAN. Where is this project?

Mr. McCrory. It extends from Lake Traverse to the international boundary.

The CHAIRMAN. Is that all?

Mr. McCrory. I have nothing more to say.

The CHAIRMAN. Thank you very much. Mr. McCrory.

What is the next item, Mr. MacDonald?

Mr. MacDonald. The next item, Mr. Chairman, is page 235, No. 59, where the largest increase of any is requested. That is an increase of \$75,000, of which \$50,000 should be immediately available. Practically the only object in requesting an increase in this item is to allow us to establish the testing and rating of farm tractors. Mr. McCormick, chief of the division, will give you some explanation of this particular item and what is proposed to be done if the increase is granted by this committee. A recommendation for the increase was carried in the Secretary's estimates for last year, and there is a very considerable demand both from the manufacturers of farm tractors, from a number of the farm owners, and from a number of the States for this department to take up this work. The State of Nebraska has already passed a law that no tractors shall be sold within that State that have not been tested and certificate granted. It is our proposal to put this on a national basis rather than a State basis, though in cooperation with the States. It is quite probable that if this increase is

granted, a considerable part of our work will be done in Nebraska or in the district where the tractors originate. We have plotted a map showing where the tractors are largely produced to-day. We do not expect to develop that work in Washington, but rather to work it out in connection with one or more of the State laboratories. Mr. McCormick will make a statement on the item.

STATEMENT OF MR. E. B. McCORMICK, CHIEF OF DIVISION OF RURAL ENGINEERING, BUREAU OF PUBLIC ROADS, DEPARTMENT OF AGRICULTURE.

The CHAIRMAN. We will be glad to hear Mr. McCormick again. You will speak on item No. 59, page 235, "for investigating farm domestic water supply and drainage disposal, the construction of farm buildings, and other engineering problems involving mechanical principles."

Mr. McCORMICK. The work of the Division of Rural Engineering includes farm and domestic water supply, drainage disposal—that is, the disposal of the house and farm wastes, not the drainage of the land—the construction and grouping of farm buildings; and mechanical principles involved in the application of engineering to farm work. Included under the latter are questions arising regarding farm machinery of all kinds, farm lighting, and farm heating. During the past year the division has had turned over to it the work in farm-implement control that was handled during the war by a special office and the work in the conservation of grain during thrashing that was handled by the Food Administration. Those are both activities that were handled under the food-control act. They are still in existence. The implement-control work, fortunately, is a very small project at present. The thrashing work carried on last year was done without special appropriations.

The work that has been done in the past has been in connection with the water supply, drainage disposal, house wastes, and construction, design, and grouping of farm buildings. A small amount of work has been done on farm lighting, some publications gotten out, and a certain amount of work conducted in connection with farm machinery problems; that is, we have issued instruction books on the operation and care of various implements. We have designed the machine you saw this morning for the application of poison for the cotton boll weevil. We have designed apparatus for the prevention of, and some for extinguishing fires in, grain separators, due to dust explosions, which were proven out and worked successfully; and certain special apparatus have been developed for use in investigational work.

The increase, if granted, will be used for the most part in carrying on the work of testing farm tractors. The application of power to the farm has grown up rapidly in the past few years, so that it becomes practically necessary for a farmer who is operating a farm of any size to select his machinery now with the view of operating it in conjunction with other machinery. That is, he does not buy a single piece of machinery and after that operate it with horses. He must have his separator and engine to run it, and, in many cases, run feed grinders, so that he uses some form of mechanical power.

This machinery has been produced in different places and has been assembled by the farmers, and in many cases it fails to operate properly in conjunction with other machinery, due in part to insufficient power; at other times due to lack of proper speeds. The tractor, being the largest and most expensive piece of farm machinery, is the one for the testing of which there is the greatest demand at the present time. As matters now exist, there is no standard rating for the tractor. The manufacturer may state that his tractor has such and such a horsepower. There is no way of confirming or successfully disputing that statement. The purchaser has no way of judging except possibly by looking at the size of it and guessing. There are seven or eight different formulæ for working out the horsepower of a gas engine, and applying those to the various tractors will give results varying between 50 and 75 per cent.

We have felt for some time, and I think every one familiar with the tractor industry realizes, the need of such tests. Last year there were 132,000 tractors built in this country; that is, in 1918, the actual figures were over 132,000, of which 96,000 or over remained here, the remainder being exported. The manufacturers estimated for 1919 a production of 315,000, and actually produced about 175,000. There are at present in this country in the neighborhood of from 325,000 to 350,000 tractors. These tractors will approximate probably between four and five millions of horsepower of the average size tractor. But, as I say, at the present time there is absolutely no standard for designating or determining the horsepower. The farmer or anyone purchasing a tractor has no conception of what he is getting excepting what is based on his own experience. If he has no experience he has to buy it through the purchase of a tractor. Several States are contemplating, I understand, the establishment of laws similar to that recently passed in Nebraska, which requires every manufacturer to secure an official test from the State university before he can receive a license to do business within the State. There are other conditions as regards carrying repair parts and giving certain kinds of service. But the basis of it is a comprehensive test of the University of Nebraska giving each tractor a rating, either what the manufacturer claims or something below that if the tractor falls down.

Mr. VOIGT. Would the rating apply only to horsepower?

Mr. McCORMICK. To the horsepower of the tractor, both the belt and the drawbar.

Mr. VOIGT. You do not give any certificate as to the serviceability of the tractor?

Mr. McCORMICK. They can not very well do that without wearing the tractor out, and that would mean an endurance test beyond anything that has been figured on yet. The university is contemplating an endurance run. Just what it will be they do not know themselves yet, but they expect to give the tractors severe continued usage and then take them apart and observe the effect on the various parts of the mechanism and judge from that as nearly as possible what the useful life of each tractor should be.

Mr. McLAUGHLIN of Nebraska. What other features will there be in the test?

Mr. McCORMICK. Fuel consumption will be one important feature, as the university is contemplating.

Mr. LEE. Have you discovered anything very important along that line of fuel consumption?

Mr. McCORMICK. We have made no fuel-consumption test.

Mr. LEE. I run a tractor and I would like to know.

Mr. RUBEN. Is it operated by gasoline?

Mr. LEE. Yes.

Mr. McCORMICK. We have found, as the result of questions sent out throughout the country to the tractor users and operators, that the consumption varies with the machine, with the locality, and with the individual operating it.

Mr. McLAUGHLIN of Nebraska. That Nebraska law was passed at the last regular session of the legislature, was it not?

Mr. McCORMICK. Yes, sir. They have not officially tested any tractors yet. They have gotten tractors and have put one or two through, but no results have been given out, and they probably will not give those results out until late in the summer. I have recently gone through their methods and the plans that they are contemplating for the test and have studied their equipment very closely and know it pretty well in detail.

Mr. McLAUGHLIN of Nebraska. Then the law has not really gone into effect yet?

Mr. McCORMICK. There are about 80 applications for tests now in, and until such time as the university is able to turn out tests they are issuing temporary permits for the manufacturers to do business. The law is effective after July 1, 1920, I believe.

Mr. McLAUGHLIN of Nebraska. The Nebraska tests are carried on by the University of Nebraska?

Mr. McCORMICK. Yes, sir; but they are published and the licenses are issued by some other State board, in accordance with a proviso of the law.

As regards the nature of the work of the Rural Engineering Division and its distribution throughout the country, I have prepared a chart, as shown here [indicating], which shows the various States in which assistance has been rendered in one of the following subjects: Refrigeration, heating installations, electrical installations, mechanical problems, building plans distributed, thrashing schools and conferences, and water and sewage disposal systems.

From the chart you will readily see that work has been done in every State in the Union, the amount varying a great deal with the needs of the section of the country. For instance, in one State—Kansas—it seems at first glance that we have done the most. We held there last year seven thrasher schools, and have done work on each one of our projects in that State, or rendered assistance to others doing work in that State. That assistance may be rendered to other engineers or to groups of farmers or to architects—anyone that calls on us for it.

In regard to our building plans we have gotten out designs, which are now ready for distribution, of some 125 different structures, including residences, rural school houses, barns of all types, hog houses, dairy buildings, exclusive of barns, buildings for crop storage, and a large number of minor structures. We have also shown how these can be grouped on the various types of farms having various facings.

Mr. LEE. Have you gotten out a bulletin on that?

Mr. McCORMICK. We have not a bulletin of plans. We have simply a Yearbook article in regard to that, because in the past two years we have been paying particular attention to houses suitable for both the married and single farm laborer—that is, simple bunk houses and small houses. We only send these plans out on request. If a man writes in and wants us to send them we send him a list showing what we have and a brief description of what each plan is suited for, and from that he selects the one that most nearly fits his condition. During the past 12 months, on these individual requests, we sent out over 7,000 of these plans.

The CHAIRMAN. How much are you going to do on that this year?

Mr. McCORMICK. I should like to continue that work by getting out some of the houses and farm buildings for which our correspondence shows there is demand.

The CHAIRMAN. Is there a necessity for that? Do not many contractors and lumber companies send out blue prints and specifications? I have here a calendar sent out by a lumber company which furnishes blue prints and plans and specifications for practically every kind of farm building. It seems to me that they are well supplied, without the Government spending money on the same work.

Mr. McCORMICK. The man who is at the head of the company that sends out that calendar has been to our office to confer with us and gone over our plans, and has stated very emphatically that he considers that our work should go on; that the work that they were doing was commercial, and that all of those companies were doing that commercially.

The CHAIRMAN. They furnish the plans and specifications without obligation?

Mr. McCORMICK. No, sir; they furnish plans and specifications, but they furnish them to lumber companies, who, in turn, furnish them to private individuals, with the expectation that the lumber will be bought from that lumber company.

The CHAIRMAN. Any lumber company can handle it?

Mr. McCORMICK. The plans that are gotten out are necessarily produced in large quantities, with very little attention to the needs of the farm. We try to get ours out after having studied the problem in conference with other bureaus in the department that have anything to do with the subject.

The CHAIRMAN. You could use a greater variety of plans than that?

Mr. McCORMICK. I believe we get out plans that include the latest technical knowledge on the uses to which those buildings are to be put. For instance, the dairy barns; we get the latest knowledge extant as regards the size of stall required for the different types of cows and breeds of cattle, the sizes of which vary according to the breeds. We accordingly must make our plans to fit, because the stall that will do for the Guernsey will not do for the Holstein; and there are other similar variations to be met.

The CHAIRMAN. I believe it was stated here that some of the mail-order houses were making use of your plans? There is no question but that the work is good, but have we not gone far enough without spending more on the item?

Mr. McCORMICK. Personally, I do not believe so.

The CHAIRMAN. How much have you spent?

Mr. McCORMICK. I have that figure here.

The CHAIRMAN. The principal sum would be used for tractor work?

Mr. McCORMICK. For the tractor work.

The CHAIRMAN. Are you going to standardize the tractor?

Mr. McCORMICK. No, sir.

The CHAIRMAN. You are going to test it?

Mr. McCORMICK. We are going to test it. A certain tractor will produce a certain power at the belt or flywheel and a certain power on the drawbar. We hope to go further than that and tell them that on any particular type of soil the average horsepower required to pull a 14-inch bottom will be so much, to tell the power required to operate an ensilage cutter of a given size and type, and to issue similar information relative to all farm implements and machines.

The CHAIRMAN. Are you also going to tell the cost of fuel consumption?

Mr. McCORMICK. We hope to tell the amount of fuel required.

The CHAIRMAN. Anything about the construction of the tractor?

Mr. McCORMICK. The care and operation. We expect to issue instructions on that as we have done with the grain separator, with the plow, and with several other implements.

The CHAIRMAN. Has any of the work been done by the department?

Mr. McCORMICK. Yes, sir; and has been published by the department.

The CHAIRMAN. Have any reports been issued recently?

Mr. McCORMICK. In Farmers' Bulletins. The thrasher bulletin was issued last July, I think just about the opening of the thrasher season. We are sending those out to a list of about 90,000 thrasher users.

The CHAIRMAN. Have you made tests of tractors used for plowing and for general farm work?

Mr. McCORMICK. No, sir.

Mr. ANDERSON. Most of the automobile manufacturers issue an instruction book along with the automobiles in which they tell you how and where to oil, and how to take care of it, and things of that sort. Do the tractor people do the same thing?

Mr. McCORMICK. Yes, sir.

Mr. ANDERSON. Can you tell us any more about that? Have you ever looked these things over and tested them out more than the people who manufactured them have?

Mr. MACDONALD. We may be able to tell them some things that the manufacturer would not tell them.

Mr. McCORMICK. We can, as a result of the proposed tests, tell them more about the power than the majority of the manufacturers know.

Mr. ANDERSON. You were speaking about the care of the motors.

Mr. McCORMICK. No, sir; I have stated that we can emphasize the need of proper care, and it is possible that we will bring out some points, or emphasize some points, that the manufacturer has failed to emphasize properly. But it is a fact, and manufacturers themselves have so stated, that the publication of the material we have

gotten out in connection with the grain separator and other machines has had far more weight with the public than the publications gotten out by the manufacturer himself. In all of this we are emphasizing the need of the owner or purchaser studying the manufacturer's directions and following them. There are certain general directions that we can give. One manufacturer has brought out something that we did not think of. He says, We have given a name to every part of the machine, a name that is in common use in at least some sections of the country. In other sections other names are used. One big benefit that will result from that bulletin will be the tendency for everybody to use the same name. In ordering repairs by telegraph the owner of the machine can use that name and get the repairs. The manufacturer will know what is wanted. We do not intend to replace the manufacturer's instructions but to supplement them.

Mr. ANDERSON. I suppose it is true, to some extent at least, that more weight is placed upon a document which is supposedly disinterested and comes from official sources than upon documents coming from the manufacturer; at least, that would be true with reference to such literature. I am not so sure that it would be so true with reference to literature that had to do with the actual operation and care of machines.

Mr. McCORMICK. I believe it is true that the Government publication does carry more weight. That is not saying that it deserves to, but it does carry more weight and is referred to more frequently.

Mr. ANDERSON. Do you think there is under present conditions—I was about to say deception, but I will say misinformation—misinformation in regard to the actual horsepower of farm tractors and their actual ability in performance?

Mr. McCORMICK. I believe a great many purchasers have no idea at all what they are really getting. There are some manufacturers who honestly do not know what power they are producing, but think they are producing a certain power. There are others that know they are producing all that they claim, and possibly there are a few who know quite accurately just what the machine can do; but the latter are in a very decided minority.

Mr. ANDERSON. If the farmer is disappointed because his tractor does not meet his requirements, is that due to the fact that it does not produce what he expects it to do, or that he has not sufficiently stated his requirements?

Mr. McCORMICK. It might be either one. Of course, if a man can not handle a tractor, he is not likely to get satisfaction.

Mr. ANDERSON. As a matter of fact, there is not much information as to what tractors will do?

Mr. McCORMICK. No, sir; not what there should be.

Mr. ANDERSON. A sound horsepower test, I take it, is fundamental to determine the ability of the tractor in performance. Consequently, the first thing you will have to do to get at this tractor business at all, I take it, is to establish some standard of performance, either in the laboratory way or in the field-test way, as a basis of comparison upon which you can determine the relative performance of tractors. Is that correct?

Mr. McCORMICK. Yes, sir; we must have something by which to measure the machine.

Mr. ANDERSON. For the information of the committee and for my own information, I would like to ask you whether or not the technical methods by which the horsepower rating of the tractors can be determined have been reasonably well worked out?

Mr. McCORMICK. I believe that certain of the technical methods have; yes, sir. We have prepared designs of apparatus in our division which, we believe, based on our experience with other testing apparatus, will make those tests accurately. There are certain studies that must be made in the way of comparing the performances of a tractor out in the field and a tractor in a shed or a laboratory so that we can make the laboratory test intelligible.

Mr. ANDERSON. That is to say, before you can make a satisfactory laboratory test you have got to be able to know what the actual test is in the field to reproduce the conditions to a certain extent in the laboratory?

Mr. McCORMICK. You must determine a certain constant relationship between the two.

Mr. MACDONALD. Mr. Chairman, this map [indicating], which has no legend to explain it, was plotted for our information to show the producing area where tractors are manufactured, and the center of gravity of that area, that is, as to quantity, would fall around Rockford, Ill. That is approximately correct. That is on a total yearly production of about 132,000 tractors.

Mr. McCORMICK. This year, 175,000. That center, if you will pardon me, is not based on quantity production, but on the number of factory locations.

STATEMENT OF MR. THOMAS H. MACDONALD, CHIEF OF THE BUREAU OF PUBLIC ROADS, DEPARTMENT OF AGRICULTURE—Continued.

Mr. ANDERSON. It is assumed that it is desirable to install the apparatus for testing these tractors at a point having relation to the location of production?

Mr. MACDONALD. Yes, sir; most assuredly; that has been our idea. Of course, the establishment of a laboratory in Nebraska might modify our ideas in the beginning of this work. That is to say, they have already gone ahead and have their plant practically completed, and with the pressure coming up from the manufacturers to get this work done, it might be advisable to go somewhat outside of the actual center of gravity in the beginning of this work; but eventually I believe we ought to have a laboratory in the vicinity of Chicago.

Mr. ANDERSON. It is my impression that the Society of Agricultural Engineers at the meeting in Chicago recently took some action relating to the testing of tractors, or passed some such resolution.

Mr. MACDONALD. They passed a resolution memorializing Congress to give the Bureau of Public Roads the money that we are requesting to do this work; that is, to increase the appropriation.

Mr. Chairman, I do not want to unduly prolong the discussion on this point, but this is the largest item in which we have asked an increase and, as I stated in the beginning, it is part of a program of farm-power investigation that the department proposes to carry on,

which, I assume, Dr. Taylor and Dr. Rommel have already presented to your committee. We believe that farm power is the one thing that perhaps is giving the farmer most concern right now. We propose in the department to carry on a very extensive study of the kind, amount, and utility of all forms of farm power, or power which is available in application to the farm, and we have asked for the increased appropriation in this item so that we could rate tractors and start the study of tractors as a source of power on the farm.

The CHAIRMAN. Mr. MacDonald, is this work invading the territory of the Bureau of Standards?

MR. MACDONALD. I would say in that connection that I do not think we are getting into the territory of the Bureau of Standards, but they might be getting into ours. For instance, we are applying engineering principles to the farmer's needs, and I think we know more about the needs of the American farmer in the Department of Agriculture than anybody else does.

The CHAIRMAN. I agree with you on that, but the Bureau of Standards contends that it should do all the standardization and testing. However, we are doing some standardization work in the Department of Agriculture, and I think very properly so.

MR. MACDONALD. We had that up—that idea of standardization—at the Chicago conference, at which the leading manufacturers of farm tractors were present, and they wanted it very clearly understood that we are not trying to make them standardize their product or to force them to put out the same type of machines. That is not the character of work we have in mind in testing their machines.

The CHAIRMAN. You will necessarily have to standardize the different parts of machines in order to advise the farmer which is the superior?

MR. MACDONALD. I think, Mr. Chairman, that there will be a considerable amount of work developed by this appropriation.

The CHAIRMAN. You expect to be able to point out the superiority of one over the other, do you not?

MR. MACDONALD. Indirectly; yes.

The CHAIRMAN. The best type?

MR. MACDONALD. Indirectly. We give the fuel test, and the draw-bar test, and the brake test, and the belt test.

The CHAIRMAN. Is that not practically what the Bureau of Standards is doing at present?

MR. MACDONALD. They are not doing any of that.

The CHAIRMAN. They are engaged on other lines?

MR. MACDONALD. I do not know of a single instance.

The CHAIRMAN. Are you not going to get into trouble with the manufacturers when you tell them that one make is superior to another make?

MR. MACDONALD. Mr. Chairman, I have a little different idea on some of these subjects than a lot of other people do, but I am not so convinced of the actual selfishness of many of the manufacturers and business men as a great many people are, and I believe that at the end of any period of years, say a 5-year period or a 10-year period, that we will make more progress if we work with the manu-

facturer through their voluntary acceptance of our recommendations as we work them out in the field or in the laboratory than through regulatory measures or through any attempt to standardize their product in the beginning.

The CHAIRMAN. Your purpose is to work with the manufacturer, which indirectly will benefit the farmers?

Mr. MACDONALD. Exactly, sir. I believe that it is going to take some one that knows more about farming. That is, our fundamental idea is to improve the farm, to work out the best tractor, and the department has more interest in that than the manufacturer has simply as such. That is, we go back eventually to the farm.

The CHAIRMAN. Did I understand you to say that the manufacturers were interested in the request for an increase in this item?

Mr. MACDONALD. Yes. At the Chicago conference a number of our leading manufacturers were present, and I have no doubt they would appear before this committee to indorse this request, because they do not want single State legislation. They do not want single State tests.

The CHAIRMAN. They want a uniform test?

Mr. MACDONALD. Exactly. They say it would be a blow below the belt, if you will pardon the expression, if they should have to have tests conducted by all the States in which they sell.

I think that practically closes the items, Mr. Chairman. There are no other items except the administrative item, which remains the same.

I would like to place in the record the list of the projects of the bureau which you requested, I believe, to be furnished, but the work under the different projects has already been more or less fully explained.

The CHAIRMAN. Is that incorporated in the project book?

Mr. HARRISON. The statement to which Mr. MacDonald refers is merely a list of the projects or lines of work under each item, the amount allotted this year, the estimate for next year, and the increase.

Mr. MACDONALD. If my time is not entirely up, I want to emphasize this point: That the Bureau of Public Roads, operating as a part of the Department of Agriculture, is working for the farmer in the building of roads, the improvement of machinery, and the application of engineering to the farm. I do not believe that there will be any one line of activity in the next decade that will do more for the farmer than roads and the improvement of farm machinery and the building in which the farmer dwells, including all the modern improvements; and I want to leave before the committee this thought, that we believe in the fullest cooperation with the States and are going to try to establish cooperation with the States not only in the road work but also in our irrigation, drainage, and engineering work and not do any of the work which the States can do better for themselves.

The CHAIRMAN. The proper place for the work seems to be in your bureau, but I believe we should have some understanding with the Bureau of Standards so that the work will not be duplicated. We hear so much about duplication, and I want it made clear that there is no duplication.

Mr. MACDONALD. Mr. Chairman, I am very willing to tell them to stay out of our field in this matter.

The CHAIRMAN. You may take it up with them. We will give that item consideration. Thank you very much, Mr. MacDonald, for your testimony. If there is no objection, the committee will now adjourn until 10 o'clock Monday morning.

(Thereupon, at 5.15 p. m., the committee adjourned to meet again at 10 o'clock a. m., Monday, January 12, 1920.)

Activities under lump-fund items, Bureau of Public Roads.

Projects.	Allotment, 1920.	Estimate, 1921.	Increase
Road-management investigations:			
(a) Supervision.....	\$10,000	\$10,000	.....
(b) Economic studies.....	10,000	10,000	.....
(c) Traffic studies.....	10,000	10,000	.....
(d) Advice, lectures, and demonstrations.....	8,240	8,240	.....
	38,240	38,240	.....
Road building and maintenance investigations:			
(a) Supervision.....	35,000	35,000	.....
(b) Investigation of costs of road maintenance.....	5,000	5,000	.....
(c) Investigations of various types of road construction and costs.....	1,800	1,800	.....
(d) Object-lesson roads.....	10,000	10,000	.....
(e) County road systems.....	2,500	2,500	.....
(f) Inspection, advice, and lectures.....	53,000	53,000	.....
(g) Superintendence of county roads.....	2,520	2,520	.....
(h) Bridge construction in connection with road building and maintenance.....	28,400	28,400	.....
	138,220	138,220	.....
Road-material investigations:			
(a) Supervision.....	12,000	15,000	\$3,000
(b) Routine chemical testing and inspection.....	2,000	3,000	1,000
(c) Microscopic examination and classification of road-building rocks.....	1,200	2,500	1,300
(d) Research on dust preventives and road binders.....	5,000	7,500	2,500
(e) Experimental bituminous road construction and maintenance.....	250	1,500	1,250
(f) Physical tests of road-building materials.....	3,000	6,000	3,000
(g) Concrete investigations.....	12,000	25,000	13,000
(h) Nonbituminous road-building investigations.....	8,000	12,020	4,020
(i) Instrument making and repairing.....	3,000	3,000	.....
(j) Standardization of methods of testing bituminous road materials.....	320	500	180
(k) Standardization of methods of testing nonbituminous road materials.....	250	1,000	750
	47,020	77,020	30,000
Field experiments:			
(a) Supervision.....	100	100	.....
(b) Experimental road construction.....	37,500	35,000	.....
(c) Traction tests.....	.....	3,500	.....
(d) Experimental road maintenance.....	22,200	17,400	.....
(e) Road and bridge foundation tests.....	200	4,000	.....
	60,000	60,000	.....
Farm irrigation investigations:			
(a) Supervision.....	3,750	3,750	.....
(b) Utilization of water in irrigation.....	35,000	45,000	10,000
(c) Pumping for irrigation.....	5,000	6,500	1,500
(d) Irrigation appliances and equipment.....	7,500	9,000	1,500
(e) Flow of water for irrigation in ditches, pipes, and other conduits.....	3,500	3,500	.....
(f) Measurement of water for irrigation.....	500	1,000	500
(g) Customs, regulations, and laws relating to irrigation.....	3,500	4,000	500
(h) Drainage of irrigated lands.....	15,000	20,000	5,000
(i) Expert advice and assistance.....	1,600	2,600	1,000
(j) Irrigation in humid regions (research).....	7,000	7,000	.....
	82,440	102,440	20,000

* Includes \$2,040 transferred to statutory roll.

* Includes \$5,920 transferred to statutory roll.

Activities under lump-fund items, Bureau of Public Roads—Continued.

Projects.	Allotment, 1920.	Estimate, 1921.	Increase.
Farm drainage investigations:			
(a) Supervision.....	\$7,000	\$9,000	\$2,000
(b) Construction, operation, and maintenance of drainage improvements.....	10,000	18,000	8,000
(c) Drainage of peat, turf, and muck soils.....	2,000	5,000	3,000
(d) Drainage of tillable lands (research).....	5,000	10,000	5,000
(e) Organization, financing, and legal regulations of drainage districts.....	2,000	3,000	1,000
(f) Run-off investigations.....	5,000	10,000	5,000
(g) Drainage of tidal marshes.....	700	700	.....
(h) Drainage of tillable lands (extension).....	15,000	16,000	1,000
(i) Drainage of overflowed lands.....	15,000	20,000	5,000
(j) Drainage of swamp lands.....	5,000	5,000	.....
(k) Drainage of nonirrigated western lands.....	7,000	7,000	.....
	73,760	103,760	30,000
Rural engineering investigations:			
(a) Supervision.....	300	500	200
(b) Investigations of farm domestic water supply and drainage disposal.....	3,500	5,000	1,500
(c) Investigations of the construction of farm buildings.....	13,200	20,000	6,800
(d) Investigations of rural-engineering problems involving mechanical principles.....	8,000	74,500	66,500
	25,000	100,000	75,000
General administrative expenses.....	16,000	16,000	.....
Total.....	480,660	635,680	155,000

**COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Monday, January 12, 1920.**

The committee met at 10.30 o'clock a. m., Hon. Gilbert N. Haugen (chairman) presiding.

BUREAU OF MARKETS.

The CHAIRMAN. The committee will come to order. We have with us this morning representatives of the Bureau of Markets.

Mr. HARRISON. We will take up next, if it is agreeable to the committee, the estimates of the Bureau of Markets which appear on page 238. Mr. George Livingston, acting chief of the bureau, is here and will present them.

The CHAIRMAN. We will be very glad to hear Mr. Livingston.

**STATEMENT OF MR. GEORGE LIVINGSTON, ACTING CHIEF OF THE
BUREAU OF MARKETS, DEPARTMENT OF AGRICULTURE.**

Mr. LIVINGSTON. The items begin on page 238, Mr. Chairman, but before taking them up, I would like to make a very brief general statement with regard to the work of the bureau as a whole. I hope the committee will keep in mind, during the consideration of these several items, the fact that the Bureau of Markets is engaged in pioneer work in a new field. For a great many years the Federal Department of Agriculture, State colleges, and experiment stations have been devoting considerable time and money to solving the problems of production. This work has dealt with the production end of farming, while the Bureau of Markets is engaged in solving the farmers' selling problems. The Bureau of Markets does its work in somewhat the same manner as the agencies dealing with the production end of farming, except that they deal with technical and scientific questions, whereas we deal with questions of economics and business. The work coming under its jurisdiction is primarily interstate business, since marketing problems are not confined to local communities nor are they confined to geographic boundaries. As an illustration, grain grown in the grain-producing sections of the United States comes into competition, not only in the markets of the United States, but in the markets of the world.

The various items to which we particularly desire to direct your attention have been arranged on this chart for the benefit of the committee in three major subdivisions: (1) Investigational and demonstrational work, (2) service work, and (3) regulatory work. The appropriation for the year 1920 is \$2,811,365, and estimates carried

for the year 1921 are \$3,023,395, or a total net increase is recommended of \$212,030.

Under investigational and demonstrational work we are asking a net increase of \$48,830. We are requesting \$15,000 for carrying on wool-marketing work, \$30,000 for preservation of fruits and vegetables in transit and storage, and \$26,650 for State cooperation in marketing. We are dropping from this general subdivision rural organization work to the amount of \$19,580 (which is being transferred to the Bureau of Farm Management) and statutory salaries to the amount of \$3,240, making a total net increase of \$48,830.

Mr. ANDERSON. Do those increases take into consideration the transfers to the statutory roll?

Mr. LIVINGSTON. Yes, sir. In the service work the appropriation this year is \$986,286, whereas the estimate for 1921 contemplates \$1,134,846, or a total net increase of \$148,560. That increase is to be divided between three lines of service work, \$50,000 for market news service on fruits and vegetables, \$50,000 for market news service on live stock and meats, and \$50,000 for butter and hay inspection work. We have decreased the expenditures under those funds by \$1,440, which is to be dropped from the statutory roll.

For regulatory work during the fiscal year 1920 we had \$1,076,728, while for the next year we request \$1,091,368, a total net increase of \$14,640. Increases are asked for the following items: \$1,000 for enforcement of standard container act, \$79,720 for the cotton-futures act, and \$45,000 for the warehouse act. This subdivision is being reduced by \$75,000. The subdivision covering regulatory work which I have been discussing, \$75,000, which has been appropriated for stockyards regulation, is to be dropped, as is the case with \$35,000, which is now available for war-industries wool work and statutory salaries amounting to \$1,080. The total net increase for the entire bureau, therefore, is \$212,030. This is arrived at by taking into consideration items for which an increase has been asked and items which have been either transferred to other parts of the department or dropped entirely.

The CHAIRMAN. Has the wool work been completed?

Mr. LIVINGSTON. No, sir; it is not completed as yet.

The CHAIRMAN. You do not estimate for the work?

Mr. LIVINGSTON. We have not made an estimate for money to continue it beyond the fiscal year. We hope to have it finished at that time. It may not be finished then, however, and if it is not we will have to consider submitting a supplementary estimate. The items in which increases are involved are listed here for the convenience of the committee.

Mr. JONES. Name them so as to get them in the record.

Mr. LIVINGSTON. Item 80, marketing and distributing farm products, \$45,000; item 81, market news service on fruits and vegetables, \$50,000; item 83, market news service on live stock and meats, \$50,000; item 88, food-products inspection, \$50,000; item 91, State cooperation in marketing, \$26,650; item 93, standard container act, \$1,000; item 95, cotton-futures act, \$79,720; and item 97, warehouse act, \$45,000.

That closes my general statement, and I would like to take up the statutory roll.

Mr. JONES. Why do you have a decrease in rural organization of \$19,000?

Mr. LIVINGSTON. That is an item which has been transferred from the Bureau of Markets to the Office of Farm Management; therefore it is a decrease as far as the Bureau of Markets is concerned.

Mr. JONES. It is added to another bureau?

Mr. LIVINGSTON. Yes; but it does reduce the amount of money available to the Bureau of Markets; and in order to make our sheet balance, we must show it as being transferred elsewhere and charge it up to the other bureau.

Mr. JONES. What did you say as to the stockyards regulation?

Mr. LIVINGSTON. That will be discontinued as soon as the \$75,000 has been expended, which we contemplate will be in the course of a month or six weeks.

Mr. JONES. That is a real decrease?

Mr. LIVINGSTON. Yes; that is a real decrease.

Mr. JONES. Do the same conditions exist as to the War Industries Board wool work?

Mr. LIVINGSTON. Yes, sir.

The CHAIRMAN. Why do you discontinue the appropriation for the regulation of stockyards?

Mr. LIVINGSTON. The stockyards supervision work is carried on under the authority contained in the food-control act and consequently is war work. We have no authority to continue it after the declaration of peace; therefore the item is being dropped.

Mr. HARRISON. You might explain, Mr. Livingston, that the increase of \$79,000 in the item for the enforcement of the cotton futures act is only an apparent increase, and that it is in reality a reduction below the funds available for that purpose this year.

Mr. LIVINGSTON. The wheat price guaranty act of March 4, 1919, carried an amendment to the cotton futures act. Of the money appropriated under it, \$100,000 was set aside by the President to carry out the provisions of the amendment to the cotton futures act. That money will not be available next year, so an estimate is made for \$79,720 as being necessary to continue the work which is being carried this year under the allotment mentioned. That item, therefore, shows an apparent increase, but in reality it is not an increase so far as the money available to the bureau is concerned.

Mr. McLAUGHLIN of Michigan. I did not get what you said about the money that is available under the wheat guaranty act. Will you kindly repeat what you said about that?

Mr. LIVINGSTON. Yes, sir. The wheat price guaranty act carried an amendment to the cotton futures act. In order to carry out the purposes of that amendment—

Mr. HEFLIN. Passed last February?

Mr. LIVINGSTON. Passed March 4. In order to carry out the provisions of that amendment, \$100,000 was set aside by the President and assigned to the Bureau of Markets.

The CHAIRMAN. Kindly state what the amendments are.

Mr. LIVINGSTON. Very briefly, the amendment is to inspect and classify cotton tendered for delivery on future contracts and to start a price reporting service. Mr. Murph will be before the committee a little later to speak relative to the details of that item and will give you full information at that time.

Mr. McLAUGHLIN of Michigan. You say that the stockyards regulation work for which you used \$75,000 was authorized by the Food Control Act; under what particular provision of that act?

Mr. HARRISON. Section 5 of the Food Control Act, which authorizes the licensing of agencies engaged in the importation, manufacture, and distribution of food products and other necessities.

Mr. McLAUGHLIN of Michigan. And the issuing of licenses and the looking after them as they related to stockyards cost \$75,000?

Mr. HARRISON. \$75,000 during the current year. The appropriation is made in this bill and we will come to the discussion of it later. Congress provided the money for continuing the work after July 1, 1919. Prior to that time it was financed by the allotment from the President's special fund.

The CHAIRMAN. You might take up the estimates item by item, beginning with the transfers to the statutory roll.

Mr. LIVINGSTON. I will say, Mr. Chairman, that there are no increases provided for in the statutory roll, all items being transfers from the lump sum to the statutory roll without increases.

The CHAIRMAN. Kindly indicate the transfers.

Mr. LIVINGSTON. The first item affected is No. 5, one administrative assistant at \$2,100, which is a transfer from the lump fund for State cooperation in marketing.

The CHAIRMAN. Is there one administrative assistant?

Mr. LIVINGSTON. Yes.

Mr. ANDERSON. How large an increase was there in the appropriation for the Bureau of Markets last year; was there an increase or decrease?

Mr. LIVINGSTON. An increase in the permanent fund, but a very large decrease with respect to the total of permanent and war emergency funds.

The next item in which there is a change is No. 7, four executive clerks at \$2,000 each, an increase of 2 by transfer from lump funds for market inspection of perishable foods and collecting and distributing market information.

The next item affected is No. 8, two clerks at \$2,000 each, an increase of one by transfer from lump fund for cotton futures act.

The next is item No. 13, 16 clerks of class 3, an increase of 2 by transfer from lump funds for collecting and distributing market information and grain standardization.

The next is item 14, one clerk by transfer from lump fund for market reports on live stock and meats.

The next is item 17, two clerks at \$1,380 each, an increase of one by transfer from lump fund for marketing and distributing farm products.

The CHAIRMAN. Kindly tell us about item 16.

Mr. JONES. That is a decrease.

Mr. LIVINGSTON. Yes. Item 16, 35 clerks, class 2, decrease of 1 by transfer to statutory roll, Bureau of Farm Management and Farm Economics, and one new place, making no change in the number of places.

When the term "new place" is used, it refers to a clerk carried on the appropriation of \$100,000 which I mentioned a while ago as having been allotted to the bureau for carrying out the provisions of

the cotton futures amendments. It is a new place so far as the Agriculture appropriation bill is concerned, but the position is now existing and the clerk is now paid out of funds appropriated in the wheat price guaranty act.

The next item affected is No. 20, 193 clerks, class 1, increase of 32, 29 by transfer from lump funds as follows: Two from marketing and distributing farm products, 7 from collecting and distributing market information, 4 from market reports on live stock and meats, 2 from dairy and poultry products, 1 from grain, hay, feeds, and seeds, 3 from market inspection of perishable foods, 1 from State cooperation in marketing, 1 from cotton futures act, and 8 from grain standards act; and 3 new places; also a decrease of 2 by transfer to the statutory roll of the Bureau of Farm Management and Farm Economics; making a net increase of 30 places.

Those new places are the same as those referred to a moment ago. They are positions carried under the wheat price guaranty act for carrying out the provisions of the amendments to the cotton futures act.

The next item in which there is a change is No. 22; 78 clerks at \$1,100 each, increase of 38, 37 by transfer from lump funds, 2 from marketing and distributing farm products, 8 from collecting and distributing market information, 1 from market reports on live stock and meats, 2 from dairy and poultry products, 3 from grain, hay, feeds, and seeds, 1 from food supply investigations, 1 from market inspection of perishable foods, 1 from cotton testing, 1 from State cooperation in marketing, 1 from grain standardization, 2 from cotton futures act, 14 from grain standards act, and 1 new place.

The new place is carried in the \$100,000 allotted to the bureau under the wheat price guaranty act.

The next item in which there is a change is item No. 23, 101 clerks at \$1,000 each, increase of 13 by transfer from lump funds as follows: Three from marketing and distributing farm products, 5 from collecting and distributing market information, 2 from dairy and poultry products, 1 from food supply investigations, 1 from market inspection of perishable foods, and 1 from grain standards act.

Item No. 29 drops two clerks at \$720 each.

Item 30 is an increase of one custodian at \$1,200 by transfer from lump fund for grain standardization.

The next is item 34, one laboratory aid at \$840, dropped.

The next item is No. 35, one laboratory aid at \$720, dropped.

The next item is No. 49, one draftsman at \$1,000, by transfer from lump fund for grain standardization.

The next item is No. 53, one map tracer at \$600, which is dropped from the roll.

The next item in which there is a change is 56, 13 machine operators at \$1,000 each, increase of 12 by transfer from lump funds—1 from marketing and distributing farm products, 1 from collecting and distributing market information, 8 from market reports on live stock and meats, and 2 from dairy and poultry products.

Mr. McLAUGHLIN of Michigan. What do these machine operators do?

Mr. LIVINGSTON. They cut stencils and make mimeographs to get out mail reports.

The next item in which there is a change is 57, eight machine operators at \$900 each, by transfer from lump funds—three from marketing and distributing farm products, two from collecting and distributing market information, one from dairy and poultry products, one from cotton-standards investigations, and one from grain-standards act.

The next is item 59, three skilled laborers at \$900 each, increase of one by transfer from lump fund for grain, hay, feeds, and seeds.

The next is item 65, three messengers at \$900 each, by transfer from lump funds—one from marketing and distributing farm products and two from collecting and distributing market information.

The next item in which there is an increase is 66, two messengers at \$720 each, increase of 1 by transfer from lump fund for dairy and poultry products.

The next item in which there is a change is No. 67, 10 messengers at \$540 each, changed to 10 messenger boys at \$540 each.

The next item in which there is a change is No. 68, 1 messenger at \$480, changed to 1 messenger boy at \$480.

The next item in which there is a change is No. 69, 10 messenger boys at \$600 each, increase of 4 by transfer from lump funds for market reports on live stock and meats, dairy and poultry products, market inspection of perishable foods, and grain-standards act.

The next item in which there is a change is No. 70, 15 messenger boys at \$540 each, increase of 10 in lieu of 10 messengers at \$540 each.

The CHAIRMAN. What are these boys doing? Are they employed in Washington?

Mr. LIVINGSTON. Some are in Washington; a number are in field offices.

The CHAIRMAN. How many have you?

Mr. LIVINGSTON. There are 47, of whom 33 are in Washington and 14 in the field. That is in the whole service. You will remember, Mr. Haugen, that we have our offices scattered over the city here in eight buildings, and we have to have messenger service from one building to the other.

The CHAIRMAN. How many buildings do you occupy?

Mr. LIVINGSTON. Eight buildings in all; we have parts of eight buildings.

The CHAIRMAN. Where are they located?

Mr. LIVINGSTON. Mr. Bailey can give the location of these buildings better than I.

Mr. BAILEY. These buildings are located at 1358 B Street SW.; 220 Linworth Place SW.; 221 Linworth Place SW.; Thirteenth and C Streets SW.; a group of temporary buildings between Sixth and Seventh Streets SW. and B and C Streets SW.—I do not know the official names for the buildings. Tempo No. 8 on D Street between Seventeenth and Eighteenth Streets. Then we have space for storage, old files, and things of that sort. There is storage space at Thirteenth and B Streets and in the terminal storage warehouse at Eleventh and D and E Streets SW.

Mr. LIVINGSTON. These messenger boys work in the mail and file room, on mimeographs, and carry packages and mail from and to these various offices and buildings. We will be glad to insert in the

record a statement showing the number of people served by each of these messengers.

The CHAIRMAN. Without objection you may insert that.
(The statement referred to follows:)

MESSANGER FORCE OF THE BUREAU OF MARKETS.

There are 47 messenger boys now in the employ of the Bureau of Markets, 33 in Washington and 14 in the field. There are 7 vacancies on the statutory roll at the present time. Two places at \$480 will be filled in the near future, but, on account of the difficulty of securing messengers, the places at \$420, \$360, and \$300 probably can not be filled.

The following table shows the messenger boys both in Washington and in the field, their salaries, and the number of people they serve:

	Salary.	City.	Number of persons served.
2 messenger boys.....	\$600	Washington...	23.
9 messenger boys.....	540	do.....	128.
2 messenger boys.....	540	do.....	Entire bureau. ¹
17 messenger boys.....	480	do.....	304.
2 messenger boys.....	480	do.....	Entire bureau. ¹
1 messenger boy.....	480	do.....	Detached to Reclassification Commission.
2 messenger boys.....	600	Philadelphia...	32.
1 messenger boy.....	540	do.....	9.
2 messenger boys.....	600	Chicago.....	38.
1 messenger boy.....	540	do.....	9.
2 messenger boys.....	600	New York.....	21.
1 messenger boy.....	600	Kansas City.....	6.
1 messenger boy.....	600	Buffalo.....	1. ²
1 messenger boy.....	540	Boston.....	16.
2 messenger boys.....	480	do.....	16.
1 messenger boy.....	540	Cincinnati.....	6.

¹ These messenger boys work in the telegraph section, the library, and in mails and files, and serve the entire bureau.

² All of the messenger boys in the field, with two exceptions (the exceptions being the messengers in the grain offices at New York and Chicago), are in branch offices issuing market reports. These boys are engaged in regular messenger work but a small portion of the day. Their chief duty is to assist in the machine rooms, operating the mimeograph, addressograph, and folding and sealing machines. It is necessary to use messenger boys for this work because it is impossible to secure and retain machine operators at the salaries that can be paid—\$720 to \$1,200 per annum. As an example of the duties these field messengers perform, each of the three boys in the Philadelphia joint office spend one-third of the day at the telephone switchboard.

Mr. LIVINGSTON. That completes, Mr. Chairman, the changes that are provided for on the statutory roll.

The next item is No. 80, "for acquiring and diffusing among the people of the United States useful information on subjects connected with the marketing and distributing of farm and nonmanufactured food products and the purchasing of farm supplies independently and in cooperation with other branches of the department, State agencies, purchasing and consuming organizations, and persons engaged in the transportation, marketing, and distributing of farm and food products."

We are asking for a net increase of \$45,000, \$15,000 for wool marketing and \$30,000 for the preservation of fruits and vegetables in transportation and storage. I would like to have the committee hear Mr. Hall with respect to the \$15,000 increase requested for wool marketing.

The CHAIRMAN. We will be glad to hear Mr. Hall.

STATEMENT OF MR. L. D. HALL, SPECIALIST IN CHARGE OF LIVE STOCK AND MEATS DIVISION, BUREAU OF MARKETS, DEPARTMENT OF AGRICULTURE.

Mr. HALL. Mr. Chairman and gentlemen of the committee, the Bureau of Markets is doing some work along the lines of wool marketing at present on funds allotted from this general fund. We are spending this year at the rate of about \$12,000, this money being used for reports on wool stocks in the hands of the dealers and manufacturers and wool consumed from month to month by wool manufacturers. We also started last May, during the previous fiscal year, to report on wool-market prices, but were obliged to discontinue that the 1st of July on account of the reduction in our appropriations.

The principal need for this \$15,000 at this particular time is brought about by the fact that the Bureau of Markets is in possession of a large number of wool samples which were turned over to us through the courtesy of the War Department. You will recall that the War Department took over the 1918 wool clip completely, and samples were taken of every lot of wool purchased by the War Department. They had something like 8,000 or 9,000 of these samples, and we realized that it was the greatest opportunity that ever had existed for a thorough-going study of the quality and grades of wool from the different sections of the United States.

I presume the members of the committee, most of you at least, realize that the marketing of wool at the present time is at very loose ends. There are no centralized markets for wool in this country, and just as a farmer who has a hide or a few hides to sell, he is largely—in fact, almost entirely—at the mercy of the dealer who comes out from Boston or Philadelphia to his place in Iowa or Wyoming. The farmer usually, or the wool grower, does not know within 5 or 10 cents a pound, or even more than that, what his wool is actually worth, and since there are no standards of any kind, no uniform ways of classifying or grading wool, the farmer is absolutely in the dark, and even the large Western wool grower who clips a large band of sheep is not very much better off, because he is several thousand miles removed from the Atlantic seaboard, which consumes practically all of the wool that is produced in this country.

The CHAIRMAN. Do you instruct how to treat and grade the wool?

Mr. HALL. We have not been able yet, Mr. Chairman, because funds have not been available to develop these standards.

The CHAIRMAN. Is the purpose of the bureau to standardize?

Mr. HALL. That is the particular purpose of this particular item, although, as you will notice in the Book of Estimates, it is proposed to carry on some work along the lines of price reporting and developing cooperative methods of marketing along the lines that Congressman Osborne mentioned a few moments ago with reference to fruits. There is no farm product or range product in America the producers of which labor under greater difficulties in getting their product to the markets and getting their fair share of the dollar of the consumer.

The CHAIRMAN. Kindly tell us about the alleged frauds and what you are doing to detect the frauds.

Mr. HARRISON. That will come under another paragraph—the item carrying \$35,000 for the completion of the work of the wool section of the War Industries Board.

We are dropping the appropriation from these estimates, but when it is reached I imagine the committee will wish to know what progress has been made on the work.

The CHAIRMAN. You may proceed in your own way, Mr. Hall.

Mr. HALL. As I said, the War Department officials were so considerate as to turn over to us some 7,000 samples of wool which they collected last year in the purchase of the entire wool clip, and there never before in the history of the world was such a collection of wool samples or such a rare opportunity to make a thorough study of wool standards and develop something similar to the United States cotton standards. I assume this committee is familiar with that. Just to give an idea of the possibilities of that sort of thing with regard to wool, here is a set of samples furnished by various woolen manufacturers and dealers at our request, which our wool specialist has mounted [indicating] to show you the immense range in diameter, length, and quality of wool, running from the finest of merino to the coarse braid or Lincoln wool.

The CHAIRMAN. Is the longer fiber superior to the shorter?

Mr. HALL. It depends somewhat on the use. This [indicating] is suitable for braids and carpetings and that sort of thing, while this [indicating] is used for the finest of clothing purposes. I am not a wool specialist, however.

The CHAIRMAN. Do you propose to standardize as indicated by these samples?

Mr. HALL. Along these general lines, yes, sir; it is in a very preliminary stage yet.

The CHAIRMAN. Is the standardizing done in the same way you standardize cotton?

Mr. HALL. Yes, sir; and you recall it took many years to develop the United States cotton standards. It would take some little time—I do not know how long—before we can make the same progress with wool standards that has already been made with cotton.

The CHAIRMAN. How many samples have you here before us?

Mr. HALL. Eighteen samples, representing the extreme high, low, and medium qualities of wool in each commercial grade.

Mr. HEFLIN. How many grades of wool are there?

Mr. HALL. The United States Government has not fixed any definite number as yet. That remains to be worked out. I have with me a number of copies of the quarterly report of the stocks of wool, which we issue, which shows the six grades generally recognized by the wool trade. The grades are fine, three-quarter blood, half-blood, three-eighths, quarter-blood, and low. We also are reporting each grade as domestic and foreign.

Mr. HEFLIN. There are five or six that equal the cotton used in the commercial trade.

Mr. HALL. There are six commercial grades of wool, and then there is an infinite number of gradings of wool, according to the custom of the particular section of the country concerned.

Mr. WILSON. You mean there are six classes of grades in the commercial world?

Mr. HALL. Yes, sir. If you multiply six by two it means that each of these grades is divided into combing and clothing wools. It makes a maximum of about 12 grades so far as diameter and length of staple is concerned.

The CHAIRMAN. If you make it quarters it would be four times that, or 24.

Mr. HALL. I am not a wool expert. I think something around 12 grades—or rather 6 grades and 12 classes—is about as far as it would be feasible to go in establishing official standards. I should say, on general principles, that the fewer the number of grades that can be fixed the better, as in the cotton standards where the number of grades has been held down to a comparatively few.

The CHAIRMAN. Thank you, Mr. Hall. The next increase under item 80 is \$30,000 for extending the investigations regarding the preservation of fruits and vegetables. We have present Mr. Crane, who represents a number of fruit shippers' associations, who would like to be heard on this matter.

STATEMENT OF MR. WILLIS CRANE, REPRESENTING THE INTERNATIONAL APPLE SHIPPERS' ASSOCIATION, THE NATIONAL LEAGUE OF COMMISSION MERCHANTS, AND THE WESTERN FRUIT SHIPPERS' ASSOCIATION OF AMERICA.

Mr. CRANE. Mr. R. G. Phillips, as secretary of the International Apple Shippers' Association, had requested that he be heard to-day in connection with this matter, but he was unable to reach Washington, so he has asked me to read a short statement to the committee. The three associations on whose behalf this statement is made ship over 100 different food commodities, including all of the perishables, and the three organizations represent the largest shippers and receivers of fruits and vegetables in the United States. Mr. Phillips's statement is addressed to the chairman, and dated January 10, and reads as follows:

INTERNATIONAL APPLE SHIPPERS' ASSOCIATION,
Rochester, N. Y., January 10, 1920.

HON. GILBERT N. HAUGEN,
Chairman Committee on Agriculture,
House of Representatives, Washington, D. C.

DEAR SIR: I regret that I am not able to appear before your committee personally, but it will be impossible for me to be in Washington Monday or Tuesday. I understand that the hearings will close on the Agricultural appropriation bill on Tuesday, and I am therefore writing you and the committee briefly.

We are, and have been, vitally interested in the investigations and experiments conducted by the Department of Agriculture with respect to the transportation, refrigeration, protection, and storage of perishables. We regard the work which has been done as of the utmost value from a practical standpoint and urge as earnestly as it is possible to urge that a sufficient sum be made to take care not only of domestic but also export investment.

I assume that it is not necessary to go into details with the work which has been done. The committee is undoubtedly the work of such members of the Department of Agriculture as H. J. Ramsey, V. W. Ridley, A. W. McKee, and their real practical contributions to the conservation of perishable food products.

The work of the department in connection with poultry, fish, meats, fruits, and vegetables is a heavy one, and its cost from a practical and economic standpoint is considerable.

been improved and a standard refrigerator car worked out which, if built and operated, will materially assist in reducing waste and encouraging production. Light has been thrown on this complex subject which has benefited the whole industry, including the transportation companies. Specifications for proper storages have been worked out and a great deal done by way of experiment to indicate the best methods of handling in transit.

Much, however, remains to be done. It would be most unfortunate to stop now. We are at a turning point and where the best results can be had only by going on.

Take the fruit and vegetable field alone: I am absolutely certain that if the department is allowed to proceed and conduct the necessary experiments hundreds of thousands of dollars can be saved to producers and consumers in avoiding loss and waste and in the saving of ice and refrigeration charges through the development of the salted car and improvements to present equipment.

The work ought not to be allowed to lapse. Last year the appropriation was so small that even the maintenance of a small staff was in doubt. At that time this association, in conjunction with the California Fruit Growers' Exchange, the National League of Commission Merchants, the Western Fruit Jobbers' Association, and the American Fruit and Vegetable Shippers' Association, appealed to Congress for a sufficient fund, but we were turned down.

I have just been through a long fight before the Interstate Commerce Commission in which the carriers proposed to increase icing charges all the way from 23 to 150 per cent over previous costs, and which, if permitted, will saddle production or consumption with increased costs amounting to many hundreds of thousands of dollars per year. In that fight the facts which had been developed by the department and as contained in official bulletins were of great value to producer and shipper.

In the interest of adequate production and conservation this whole work should be continued. It is for the benefit of every producer and consumer.

I therefore appeal to you and your committee for an adequate appropriation.

In addition to the domestic field is the export. This export field is vital and especially for apples. Without it production would be very seriously threatened. In a normal year our exports will run to an equivalent of from 2,000,000 to 3,000,000 barrels. The export outlet is the safety valve for the United States from a production standpoint.

Under present conditions losses from handling on the piers, in the holds, improper stowage, inadequate refrigeration, and ventilation are very great, probably 25 per cent at least. Boats from United States ports are on a less efficient basis than from Canada, where the Government, by investigation and experiment, has brought about better methods. The United States is Canada's competitor in the export of apples and should be at least as favorably situated.

We therefore urge that at least \$25,000 be specifically appropriated for export investigation and experiment.

Very truly, yours,

INTERNATIONAL APPLE SHIPPERS' ASSOCIATION,
By R. G. PHILLIPS, *Secretary*.

Mr. LIVINGSTON. Mr. Chairman I would like to have Mr. Marshall, the assistant chief of the Bureau of Markets, discuss the item just referred to by Mr. Crane, as he has charge of the details of that work.

The CHAIRMAN. Thank you, Mr. Crane. We will be glad to hear Mr. Marshall.

STATEMENT OF MR. HERBERT C. MARSHALL, ASSISTANT CHIEF OF THE BUREAU OF MARKETS, DEPARTMENT OF AGRICULTURE.

Mr. MARSHALL. I shall discuss only that part of item 80 which pertains to the preservation of fruits and vegetables in transit and storage, for which an increase of \$30,000 is requested.

This particular matter, Mr. Chairman, I believe, has never been discussed before the committee—at least, not in recent years. I will therefore attempt to give a little outline of the work.

There are a number of different lines of work involved in this item of preservation of fruits and vegetables, and last year and during the war times the allotments and appropriations for it were quite large. The actual expenditure in the year 1918 was about \$117,000; in 1919, about \$182,000; for the current year, about \$30,000, and this year we are asking for an increase of about \$30,000 over last year. In consequence of the diminution from last year of \$182,000 to some \$30,000 this year, the number of technical employees has been diminished from 69 to 6. Accordingly, very little work has been done this year, and I shall tell you something about the sort of work that was done when we were following it up with the greatest activity in order that you may understand in a general way what the expansion will be like.

One of the earliest lines of activity of this sort was in the handling of fruits, particularly the California fruits. The members of the committee undoubtedly are acquainted with the blue mold of the orange. Ordinarily, if an orange is decayed it has a blue spot. For some years when the shipments first began that was not understood. It was in the Department of Agriculture that it was first discovered that that particular fungus which caused this decay could not act unless there was a break in the skin, and through a considerable time spent on the study of the subject it was finally discovered that very minute punctures in the skin, usually due to careless handling of the fruit, perhaps the trimming off of the stem, had caused a slight incision, and, in consequence, decay occurred. That is a very simple proposition, still it was not discovered for some years, and in that case it was through the activity of the department that it was discovered, and in the last 8 or 10 years there has been a saving of about one and a half million dollars per year to the citrus fruit industry, due to that particular discovery.

The CHAIRMAN. Who made that discovery?

Mr. MARSHALL. It was made in the Department of Agriculture, in the Bureau of Plant Industry.

The CHAIRMAN. How long ago?

Mr. MARSHALL. Eight or ten years ago.

Mr. JONES. How was the saving accomplished? How is the information given out?

Mr. MARSHALL. It was done by the issuance of bulletins on the subject and their distribution and the distribution of information through the various channels that we use. It was also demonstrated extensively in the packing houses.

That work is largely past history, but there are other elements in the matter of handling that we now have under consideration. I have some photographs here; this one [indicating] shows canteloupes packed, or, rather, loaded in cars in approved form. Before I take that up I will show you this chart [indicating] for illustration, showing the method of circulation of the air in the cars in all of this work.

Air circulation is an important element in all these matters, whether it be saving the fruit from freezing in cold weather, or

saving it from decaying by the heat in summer. Accordingly, it is one of the problems constantly studied. When you want to reduce the temperature you have ice in the ends of the car and air circulating by descending through that ice and rising near the middle of the car. When you want to heat the car, you place a heater in the middle of the car and have the current of air pass upward in the middle of the car and down at the ends.

The picture we now have before us shows how the packing of the crates is effectuated. They are packed in solid to the end of the car. Then, as I said a moment ago, it is necessary to have a circulation of air, so it is essential that the different packages should not fill up the entire car from side to side. It is essential that there should be air passages between the rows of crates and that cleats should be nailed across the tops of every second or third tier of these crates. It is necessary that they be packed well, the ends evened up and braced in the middle. You have here [indicating] an illustration of bracing. Another little element that was overlooked at the start and had to be taken care of was the extending of some braces up to the roof of the car. Such a minor matter as these cleats running across the car, clear to the other side, is one of the details that have been worked out, and they have to be explained in their uses to the individual shipper.

The CHAIRMAN. Is there an air space provided between each row of cases?

Mr. MARSHALL. Yes; that has to be taken care of. You have here an illustration in these photographs of the result when you do not have careful packing. Here [indicating] are packages of sweet potatoes which have fallen down because the packing was not good; here [indicating] are apples.

Answering a question asked a little while ago, the way in which we present this information to the trade is in a considerable measure by posters, such as the one I am now showing. The cost of a large number of these posters was some \$600 for 15,000 of them. They were distributed and asked for in large numbers throughout the sections of the country where they would be the most serviceable.

The poster I am now showing you shows baskets of grapes that because of the improper loading have fallen down and broken. In the first place, the shipper should load these baskets solid and when he reaches the sides of the car place them diagonally in order that there shall be no vacant space and that there shall be no slipping. In the case of these particular packages the air space between the rows is not essential because the baskets are rounded at the corners, and the air will work its way through.

The CHAIRMAN. How do you propose to use this appropriation?

Mr. MARSHALL. For the investigation of methods of loading to some extent in the matter that I just mentioned.

The CHAIRMAN. What other suggestions have you on shipping?

Mr. MARSHALL. That covers pretty well the particular item.

The CHAIRMAN. Is it practically all in the packing and providing an air space?

Mr. MARSHALL. And regarding the matter of handling. Then there is the matter of refrigeration. The question of refrigeration is a more serious matter.

The CHAIRMAN. Who discovered the use of salt instead of ice, as suggested in Mr. Phillips's letter?

Mr. MARSHALL. We have, at least, developed the necessity for that.

The CHAIRMAN. Is there anything new about that?

Mr. MARSHALL. Yes. I think it will be better, Mr. Chairman, if I give in some little detail just what the department has done in that respect. There are at the present time perhaps 90,000 refrigerator cars in use in this country. Of those there are perhaps 2,000 that are built in the form that the department considers the most approved.

Mr. TINCHER. Were they built by the packers or by the car companies?

Mr. MANN. By various companies; not by the packers. Those cars were for the shipment of fruits and vegetables.

Mr. JONES. Is it the latest construction of cars—in the case of these 2,000?

Mr. MANN. They are constructed according to the plans the department has worked out.

Mr. JONES. They are the latest constructed cars?

Mr. MARSHALL. They are all recent. Two years ago there were only 400; there are perhaps 2,000 at the present time.

The best grade of cars have a cork lining of about 2 inches. The refrigeration arrangement is in the end of the cars with a bulkhead that is insulated. The older system that this displaces had ice baskets in the end of the car with openings passing through from the ice into the parts of the car immediately adjacent.

In order to make a statement for the record, the illustrations we now have before us show the improved type of refrigerator car, according to the plans developed in the Department of Agriculture, and the old type of car. In this old type the space is open between the ice and the fruit. In consequence, the air passes down into the ice bunker and then passes out immediately through these openings and returns. As a result, the fruit in the middle of the car is not affected at all.

Mr. ANDERSON. How do you arrive at the movement of these currents of air in the car?

Mr. MARSHALL. By experimentation; by knowledge, in the first place, of what would happen by using our best intelligence as to how the air would work.

Mr. ANDERSON. I have heard a whole lot about human intelligence and how air would work. Unless you have made very careful tests about the process you do not know anything about it.

Mr. MARSHALL. I will show you what we have done. Those older cars did not have a false floor. They had ice bunkers arranged as I told you. In the improved cars the ice is in the end of the car as before, but they have an insulated bulkhead between the ice and the fruit so that the fruit will not be frozen. I told you about the false floor. The air passes along this floor and up through the openings in the floor and distributes through the car.

Mr. JONES. How do you know it does not come up through your first opening instead of the middle openings?

Mr. MARSHALL. That is exactly what we need the money for. By actual tests we have our men start with loads of fruit from, let us

say, California, some cars of the old type and some of the new type; they have thermometers distributed all through the cars and take readings, perhaps, every four or five hours during the entire trip. They find in the old type that the temperature falls near the ice while it remains high near the middle of the car and the fruit decays; while under the new type it is found that the cooling is evenly distributed throughout the car, and, Mr. Anderson, it brings out what you have suggested, that people know little about it. It is only by experimentation that we get results. I think that makes another matter clear that the air must be distributed all through the car and forced to pass along and come up in the middle through the openings.

Mr. JONES. That is the point I am raising. How do you force it along between the false floor and the main floor?

Mr. MARSHALL. There is an air space and it works along and works up, as it naturally would.

Mr. JONES. What is the philosophy that carries the air along to the middle of the car rather than for it to go out of the first opening at once?

Mr. MARSHALL. That is one of the matters we have to take up. If the ordinary man who did not have the time to work these things out were to attempt it he might go entirely wrong on it, so it is only by careful experiments and sending shipments through that the matter can be worked out.

Mr. JONES. What is your testimony from the people who have used this car as to its efficiency?

Mr. MARSHALL. The sort of testimony that was presented in the letter that the young man read at the opening of the day here is the kind of testimony we get. We have received a great many letters asking if we are not going to take up work again, and when Mr. Phillips wrote in again we frankly said he should take it up with the committee and he has done so.

Mr. JONES. The hot air rises and the cold air falls?

Mr. MARSHALL. Yes.

Mr. JONES. Would it not be better to start the cold air from the top of the car and throw it out at the bottom. That is the usual way with heating plants.

Mr. MARSHALL. But you would not want to let any of the air escape because then you would not have as good control. The desire is to have the car as tight as possible and keep a circulation of air in it.

Mr. JONES. To keep a circulation in the car?

Mr. MARSHALL. Yes. If the car were passing through the desert from southern California, where the fruit comes from, you would lose a great deal of efficiency in the melting of the ice with such a construction as you have referred to. The chairman asked a question about the salt.

The CHAIRMAN. Did somebody in the department discover this method?

Mr. MARSHALL. Yes; in the department.

The CHAIRMAN. Does it require special construction of the car?

Mr. MARSHALL. The special construction is what I mentioned to you, that the ice bunker in the first place should be wire so that the air will pass down rapidly; in the second place, there should be

an insulated wall between the ice and the fruit, and there should be a false floor.

The CHAIRMAN. To give it circulation?

Mr. MARSHALL. Yes.

Mr. WILSON. Is that patented?

Mr. MARSHALL. No; I do not know really whether it could be patented. If patentable by the Government, everyone would be able to use it.

Mr. WILSON. The first refrigerator cars were very valuable patents.

Mr. MARSHALL. Yes.

The CHAIRMAN. Will you tell us something now about the salt?

Mr. MARSHALL. The question of salt causes more or less difficulty; if you use it and do not understand just what you are doing, you are likely to freeze some of the fruit, and it is absolutely essential that you have a perfect-working car. One of the lines of experiments which we wish to continue and which we have done work on is to start the car with salt and cause a rapid decline in temperature before the car actually starts, with the hope that the icing of the car before it actually leaves the shipper will carry it through to destination. At a definite time the cars require icing all along the route.

Mr. HEFLIN. You mentioned that you have to ice the car all along the route.

Mr. MARSHALL. Yes.

Mr. HEFLIN. What do you mean by that? How far can the car go before they have to ice it again?

Mr. MARSHALL. There are icing stations all along the route. Can you tell, Mr. Mann, about how many times a car is iced between California and New York?

Mr. MANN. About every 12 hours.

Mr. WILSON. Does not the weather have a great deal to do with it?

Mr. MANN. The weather has a great deal to do with icing. Sometimes cars will require only 20 per cent of their capacity at any particular station and do not have to be entirely refilled.

Mr. WILSON. Icing has been done away with in the shipment of fruit from California—practically done away with.

Mr. MARSHALL. Will you let me develop that?

Mr. WILSON. What is the saving in the car?

Mr. MANN. It requires icing every 12 hours.

Mr. WILSON. Does that have anything to do with the new process? I have been told by representative fruit growers in California that the icing is practically done away with and that there is a big saving.

The CHAIRMAN. Kindly start with the time that the fruit is picked from the trees.

Mr. MARSHALL. Under the old system they would simply put it into the car and put ice in the bunkers. As I stated a moment ago, in the old system it would require icing every 12 hours, which would result in two things: First, delay; and, second, expense. With this new system less icing is required. We are experimenting with precooling before it starts, with the thought of having the temperature down before it actually leaves the station. It is hoped that under that system there will be brought about just what the chairman has mentioned—that the cars will go through without reicing, but that has not been fully developed.

Mr. McLAUGHLIN of Michigan. What is this experiment in the use of salt?

Mr. MARSHALL. Just the same as in the ice-cream freezer. You bring the temperature down very low, and you can safely do it in a car like this because the air will be distributed, and so it will cool it throughout rather than freeze the fruit near the ice.

Mr. McLAUGHLIN of Michigan. Then you start by putting in salt with the ice?

Mr. MARSHALL. Just as in the ice-cream freezer. It is hoped we can work it out to do that before the car starts, and we hope that the ice will melt less rapidly and that the car will go through from shipping point to destination without any reicing along the way.

Mr. TINCER. I understand there are these two ways of icing the car. Are there refrigerator cars that do not use ice?

Mr. MARSHALL. No. All refrigerator cars use ice. In the old cars that I told you about the ice is in open bunkers, while in the improved cars there is an insulated solid bulkhead between the ice bunkers and the fruit immediately adjacent.

Mr. TINCER. The California fruit now comes through without ice. That is an entirely different system, is it not?

Mr. MARSHALL. There is very little fruit shipped without ice clear across the continent. If you go by the northern route, you can get it through under ventilation, but not near so well.

Mr. JONES. I was misinformed. I was informed that they had a car which did not require ice at all.

Mr. MARSHALL. It would depend somewhat on the route you followed and the time of year. Of course, at this time of the year you have no ice. You have a heater.

Mr. JONES. I guess I did not understand it. I understood there was a system of cooling cars without ice.

The CHAIRMAN. Mr. Mann, can you tell us about treating fruit before loading it?

STATEMENT OF MR. C. W. MANN, POMOLOGIST, BUREAU OF MARKETS, DEPARTMENT OF AGRICULTURE.

Mr. MANN. The point Mr. Marshall was trying to make is that first the fruit is precooled, which does away with at least part of the icing en route. The shippers have this in mind: If they can precool the fruit themselves and put in ice enough to get it well started at a low temperature, it will carry through to the market without reicing on the railroad. This saves delay and expense. If the railroad receives the fruit before it is precooled and has to reice the cars en route, they have an additional rate for that.

Salting is another proposition. It hasn't been used with oranges to any great extent. The first icing with salt results in a rapid drop in temperature. More ice is required when the bunkers are refilled 12 hours later than otherwise. That practice at the present time has been objected to by some of the railroads because the salt affects the rails, bridges, and culverts. It is something that should be thoroughly tested in connection with peaches, pears, grapes, and highly perishable fruits.

Mr. JONES. You spoke something about precooling the fruit; what is that?

Mr. MANN. The method is used by the citrus growers in southern California; they have built their own precooling warehouses.

Mr. JONES. How do they do it?

Mr. MANN. In the Citrus Fruit Exchange of California the fruit is handled altogether under the supervision of the associations. They have their own pickers. They bring the fruit in and it is graded into various grades and then it is packed. It goes from the packing room into the precooling room. As a rule these precooling houses have from 6 to 10 rooms and the fruit is cooled there for from 24 to 48 hours.

Mr. JONES. How is it cooled?

Mr. MANN. By mechanical processes. It is cooled to about 40° and then it goes into the car, the bunkers of which are filled with ice furnished by the shipper. This shipment the railroad accepts at a certain freight rate. There is no further treatment required. At the present time and since that practice has been started they have been experiencing a good deal of decay in some of the fruit shipped in that way, so that the California Fruit Growers' Exchange last August took it up with the department.

Mr. JONES. Is it a fact that the decay is larger under that method than it was before?

Mr. MANN. Probably the decay is largely due to the handling of the fruit. The questions that remain to be solved are largely questions of refrigeration—the shipment of fruit under refrigeration. It has meant a very great saving, but certain features are still to be worked out. The question needs a careful investigation to see whether or not the percentage of decay in these shipments is due to the method of refrigeration and whether the temperature rises after the fruit has been on the road four or five days is the cause of the decay. So there is still some question as to whether the practices have been permanently established.

The CHAIRMAN. After you ascertain the loss by decay you investigate the cost of refrigeration?

Mr. MANN. Yes, sir. Some one asked the question as to how that is done. We take the actual temperature of different parts of the car. That is done by using electrical thermometers. They are connected with the top of the car and can be read on the outside.

Mr. JONES. What is the total percentage of the decay at present?

Mr. MANN. It varies from a few tenths of a per cent decay when the fruit is loaded in good condition, when the weather is cool, up to 30 and 40 per cent decay in extreme cases.

Mr. JONES. What is the percentage of the decay when the fruit is precooled and put in the car?

Mr. MANN. It varies, depending on the different commodities.

Mr. JONES. Use the same thing—oranges, for instance.

Mr. MANN. In the new car? The citrus fruit that goes into that car in sound condition shouldn't show more than 2 or 3 per cent of decay.

Mr. JONES. You say it is about 5 per cent with the use of this precooled process that you have?

Mr. MANN. I would not want to state that as an average, but I just merely wish to indicate that there is a certain amount of decay. We haven't the complete total record on the percentage of decay.

The CHAIRMAN. Will you please state how the salt is applied?

Mr. MANN. It is put in the ice—that is, cracked ice. First the commodity is loaded, we will say, peaches in crates, and then the bunkers are filled with ice. After the car is iced it is placed on the siding and loaded. The bunkers are again filled with ice up to this point [indicating] and then three or four hundred pounds of salt, coarse salt, is thrown in on top of the ice in both end bunkers, and then the car is ready to move.

Mr. TINCHER. What is that salt put in for?

Mr. MANN. It is to lower the temperature of the air that passes down through the bunkers. It produces a lower melting point of the ice.

Mr. TINCHER. Is it to save the ice?

Mr. MANN. To cause a more rapid melting of the ice and lower the temperature. When 25 per cent of salt is added to the ice, a temperature of 4 degrees below zero results.

Mr. WILSON. In other words, ice is cooled at the melting point?

Mr. MANN. That is true.

Mr. TINCHER. Have any experiments been made with working out a mechanical refrigerating process?

Mr. MANN. That is something that hasn't been worked out fully. They have used it in France, but in the United States conditions are quite different; our distances are so much greater.

Mr. JACOWAY. Do you always precool this fruit in warehouses, or how?

Mr. MANN. In the warehouses. Following the experimental work in 1904, the railroads built their own precooling plants. They forced cold air in with fans, circulating it through the bunkers, and they found that that was not the most successful method of doing it, and since that time the growers have built their own warehouses for precooling in southern California; so that at the present time practically all the precooling is done at the growers' warehouses or in commercial warehouses. The use of salt has an advantage. If you can precool a commodity like peaches, if it can be done while the cars are en route you are reaching the market that much sooner, 24 to 48 hours sooner. That is still to be worked out.

Mr. JONES. The whole thing is to conserve the fruit from the public standpoint and be an economical proposition from the shipper's standpoint?

Mr. MANN. Yes, sir. It increases the food supply. This car has been adopted by the Railroad Administration as a standard refrigerator car. It has been recommended to all the railroads for the building of a standard refrigerator car.

Mr. RUBEY. When they speak about shipping a carload of fruit through without the use of ice, do they not mean without the use of ice in transit after it leaves a point?

Mr. MANN. No; I rather think not. I believe they mean a ventilated shipment. The shipping of it through without ice is taking the same car and opening the hatches and letting it go clear through to market without any ice. It is what is called a ventilated shipment.

Mr. RUBEY. Is much fruit shipped in that way in warm weather?

Mr. MANN. Not in extremely warm weather; no, sir. Not in California, after about the 1st of March.

Mr. RUBEY. They ship without ice only in cool weather?

Mr. MANN. Yes, sir; that practice is very largely used on the northern railroads in the Northwest, with apples.

Mr. MARSHALL. There is another phase of the matter, the heating of the cars in cold weather to prevent freezing, which is in a way reversing the process and perhaps it would be well to tell you briefly about that. There has been only one car of approved form constructed, and that was before the close of the last fiscal year. The system consists in placing an oil stove under the middle of the car. The old system would be to put an ordinary coal stove up inside the car.

The CHAIRMAN. You heat the bottom of the car?

Mr. MARSHALL. Yes; under the new system. I thought I could probably show you a picture of the old car, with a stove placed inside in the middle of the car. The method that is recommended by the department is to place the heater below the car, in the middle of the car, either an alcohol or oil stove (the oil seems to work the best). In the system devised by the department the hot air passes from the stove into the car by one system of ducts, and the cold air comes back to the stove by another route, as it is shown in this diagram we have before us. Here we do not have a false floor with openings, but rather a solid false floor, because it is desirable that the hot air should not come up through the floor until it gets to the end of the car. As far as our experiments have gone it seems best to heat the bottom of the car and raise the temperature of the entire car in that way. When the air is heated around about the stove, it passes through certain channels under the floor of the car (it is solid in this case) to the ends. The cold air comes back by other channels to this pocket around about the stove and is heated and starts on the same journey again.

Mr. RUBEN. According to that, you have got to have a different set of cars, one for winter weather and another for summer time.

Mr. MARSHALL. You can use the same car.

The CHAIRMAN. The same principle is involved here as in the case of dry-air furnaces, is it not?

Mr. MARSHALL. Yes, sir.

The CHAIRMAN. How do you get the stove under the car to heat it?

Mr. MARSHALL. It is under the car here [indicating]. It is not intended that the air should come in from the outside. You keep the air circulating within the car, but the air does come down in the pocket about the stove, which is located below the floor of the car. Under the old system the stove is put inside the car, which would not be so effective.

Mr. TINCHER. You have one car which is a summer car?

Mr. MARSHALL. Yes, sir.

Mr. TINCHER. Would that car be suitable for winter use?

Mr. MARSHALL. It is not equipped for winter use.

Mr. TINCHER. Don't you think as a proposition of real benefit it would have been better not to have given out any advice at all until you had devised a car that could be used both winter and summer, rather than to have started building a special car for summer use and a special car for winter use? Then you could advise the proper use of that particular car. Don't you think that would have been better?

Mr. MANN. As a matter of fact, this car can be used in both summer and winter. It is a refrigerator car. The idea is to install a heater to provide a combination refrigerator and heater car.

Mr. TINCHER. I understood that you had built an ideal car.

Mr. MANN. The same sort of car is used in both summer and winter, but the equipment is different.

Mr. TINCHER. Under this system, where they say no car is ideal, did that come up to standard and could it be used in all seasons of the year?

Mr. MARSHALL. This [indicating] is a regular refrigerator car used for summer shipments. Of course, the cork lining would be the same. In the winter you keep the heat in, in the summer you keep it out. We have had no funds to continue that work this year, and that is one of the lines of work we want to take up the coming year and carry those experiments forward.

Mr. MANN. The particular car shown here has been in service constantly. It is a refrigerator car used for summer shipments. The whole idea of the work is to develop a car for use in summer and winter.

Mr. TINCHER. Mr. Marshall says it has no ice bunkers.

Mr. MANN. He merely referred to the fact that the ice bunker was temporarily taken out of the car. It has an ice bunker in it at the present time. It is a refrigerator car used for summer shipments, as you can see.

Mr. ANDERSON. If you are working on a combination refrigerator and heater, why did you take the old bunkers out?

Mr. MANN. It was merely an incident in the installation of the floor. That gives a wrong impression, because the bunkers were in the car except while the car was being remodeled. It was first built as a refrigerator car and then was adapted for heating purposes also. The point is there are millions of dollars lost every cold winter from the freezing of fruits and vegetables in transit.

Mr. MARSHALL. I think that explains the entire matter fully. You see the practice involved, and the current year we have had only six men who could devote their time to work of this sort. You have some indication of the demand for it from the letter that has been read here.

Mr. ANDERSON. Is it intended to carry on more of the same kind of experiments with the same men; do you intend to continue your investigations along the same lines?

Mr. MARSHALL. It would be continuing the same line of work, Mr. Anderson.

Mr. ANDERSON. That is an expression used here a million times every year; what does it mean?

Mr. MARSHALL. It means, as I said at the outset, that if the ordinary person were to take up these cars at the outset they would make all sorts of mistakes. We have to make all sorts of experiments. I can illustrate it by stating that we send these shipments through from California and see what happens to them. The same is true with a heater car. We have the same sort of an experiment, placing thermometers all through the car and seeing what happens, by following it through to destination.

Mr. ANDERSON. Do you use a different set of men for these different experiments?

Mr. MARSHALL. No, sir; the same set of men would work on both experiments.

Mr. ANDERSON. What do you want with the additional money?

Mr. MARSHALL. Just for our expenses like that; for the expenditure of money in improvements on the car—changes in the car; and it would be very largely for the expenses of men in following these shipments through; also for development work.

Mr. ANDERSON. Do you mean to make more shipments?

Mr. MARSHALL. Yes.

Mr. LIVINGSTON. May I say that the results related here this morning have referred primarily to work with oranges, peaches, and a few vegetables. There are various other experiments we want to conduct with fruits and vegetables. Possibly it may be necessary to make some relatively slight changes in cars to make them uniformly satisfactory to all kinds of vegetables and fruits. But there are other phases of the work that still remain to be discussed.

Mr. ANDERSON. Have you any reason to believe that you require a different kind of car to ship grapes than to ship oranges?

Mr. LIVINGSTON. Not a different kind of car, but possibly some slight arrangements to better adapt them for different kinds of vegetables and fruit and also to find out whether or not the present method of icing can be improved.

Mr. ANDERSON. I still don't see where the additional expenditure comes in.

Mr. LIVINGSTON. As Mr. Marshall pointed out, the additional money would be used very largely in following through these shipments. The shipments have been mainly with oranges, apples, and peaches. We need to go into various shipping districts throughout the country with various kinds of fruits and vegetables and follow them through with this type of equipment. Also, we wish to take up the work described in the note on page 244 of the Book of Estimates.

Mr. ANDERSON. How much will you expend on it this year?

Mr. LIVINGSTON. Approximately \$25,000, including statutory salaries.

Mr. ANDERSON. How much are you asking for?

Mr. LIVINGSTON. Approximately \$55,000.

Mr. ANDERSON. Then, you are approximately counting on doubling up—

Mr. LIVINGSTON (interposing). I don't know whether you were present when Mr. Marshall mentioned that during the war a much larger amount of money was spent on these investigations than we have available this year. This it to continue the work along that line, namely, whether or not this equipment and these refrigeration methods are adapted to other kinds of fruits and vegetables, following the shipments through to the market, and to develop other work that has not been discussed.

Mr. ANDERSON. I suppose you couldn't have a very materially different type of car to ship grapes in than for shipping oranges?

Mr. LIVINGSTON. That is true; but we want to find out whether this car and the refrigeration practices are adapted to these other kinds of fruit. If not, certain improvements may be desirable which will add to its usefulness. There are some fruits and vegetables that decay at one temperature and others that will decay at another temperature. It is just as important to get our fruit and vegetables to market in good condition as to produce them.

Here is a photograph that is shown to illustrate another feature of the work. This takes up the question of storage of just one of these products—sweet potatoes. The losses are exceedingly high in case of the storage of sweet potatoes. This is the method used since they began to grow sweet potatoes in the South. Some of you who have lived in the South have seen these banks built this way above the ground, covered over with palms or straw, and then covered over with earth. The estimates indicate that the losses in these banks amount to 50 per cent or over.

The CHAIRMAN. On what does your covering rest?

Mr. MANN. On palm branches, straw, or on cornstalks. A conservative estimate shows that the losses amount to 50 per cent of the potatoes stored in this way. There are probably 50,000,000 bushels of potatoes stored in this way. There are probably 50,000,000 bushels of sweet potatoes stored in the South in this way. The Department of Agriculture, under the war-emergency fund, took this matter up. The refrigerator-car work was also done under the war-emergency fund. We couldn't have done it under the appropriation this year or under the appropriation before we had the war-emergency fund. We have assisted growers in building in the last two years approximately 500 of these houses. This is the smallest type of house. The department has prepared plans and specifications for these houses holding 500 bushels, 2,500 bushels, 5,000 bushels, and 15,000 bushels. The losses which were reported in these houses last season were not more than 2 per cent.

Mr. WILSON. You say you have assisted growers in the construction of 500 of those within the last two years?

Mr. MANN. Yes, sir; the farmers built them. We had last year under the war-emergency fund 20 men in the Southern States working with these men who were storing the potatoes. This photograph [indicating] is a farm storage, a small house suitable for farm needs.

Mr. JACOWAY. When you get that little house stored full of potatoes, can you go into it again from time to time?

Mr. MANN. Yes. There is an aisle in it. The sweet potato is a peculiar product. It is necessary to put it through a curing process. The potatoes are put in there in hampers or baskets, or bins, and then the temperature is run up to about 85° and kept there for about 10 days. These potatoes give off about 10 per cent of their weight in moisture, so that they are cured, and if you break one in two the section is dry. When they reach that condition they will keep without very much decay—perhaps 1 or 2 per cent.

Mr. JACOWAY. In these bins do you just put the potatoes in solidly?

Mr. MANN. Yes.

Mr. JACOWAY. Isn't there a tube in each bin that runs up through it?

Mr. MANN. That it done quite often. In the center a perforated tube is run up, which aids in curing and ventilation.

Mr. JACOWAY. Is that beneficial?

Mr. MANN. Yes; undoubtedly it is.

Mr. JACOWAY. How do you cure potatoes in a house that will hold only 500 bushels?

Mr. MANN. In this house [indicating] there are four bins, and potatoes are put in to a depth of about 3 or 4 feet, and sometimes

there are two tiers. The bins are constructed of slats made of 1 by 4 inch boards, so that air circulates around them freely. A stove is placed here. It is a wood stove as a rule in the South. Ventilators under the floor are opened, and after the house begins to heat there is quite a rapid circulation of air through the house.

Mr. JACOWAY. Don't you have fans installed to make the air circulate?

Mr. MANN. No. Air is exceedingly hard to handle. With a fan it is difficult to get uniform heating.

Mr. JACOWAY. In my town there is one of those storehouses that holds 40,000 bushels of sweet potatoes. They are successfully using fans—electric fans.

Mr. MANN. The fans have been used. We find that fans are not usually necessary. Fans were tried last year, but we think it has not yet been demonstrated that they are necessary.

Mr. JACOWAY. Don't they let the air current come now from the center instead of from the sides?

Mr. MANN. Yes; it does in a house of this size; and in fact, in a house of any size it comes from a certain point. The air in this house [indicating] would come from the center. It is brought in here and circulates through.

Mr. JACOWAY. Suppose you put potatoes in this house that have been cut or mashed or bruised. Is your curing process such that it will cure that sort of wound or bruise?

Mr. MANN. Yes. Quite a high per cent of those potatoes actually become dry and hard and the decay doesn't develop. As a matter of fact, though there is quite a percentage of cut and broken potatoes that do decay—that is, when the decay has started, every one doesn't rot by any means.

Mr. JACOWAY. Does putting them in these special storage houses retard the decaying process very much more than the others?

Mr. MANN. Yes; very much more. You have forced curing in these houses which prevents the decay. Stored in an earth bank a cut potato is almost certain to decay, but under this method it is often avoided. Then there are other causes of decay than is the case with cut potatoes. That is almost entirely avoided in a house of this kind.

Mr. JACOWAY. Is not the secret of the process to keep the temperature at a given point for a given time?

Mr. MANN. Yes, sir.

Mr. JACOWAY. If that temperature rises or falls, do you not run the risk of losing your potatoes?

Mr. MANN. Yes, sir.

Mr. HEFLIN. Don't they use steam-heated pipes in some of the houses?

Mr. MANN. They may do that.

We have had two of our very best investigators working along that line to see whether or not fans can be used in the large houses. They probably can not be used in the small houses, but in the large houses of 40,000 or 100,000 bushels they may be used effectively.

Mr. JACOWAY. The best thing that I have seen in our part of the country is that of putting that tube in the bin to give the air circulation.

Mr. MANN. That is an old idea which has been used for white potatoes in Maine for a good many years.

Mr. WILSON. That was developed by the Agricultural Department, was it?

Mr. MANN. You mean that method of ventilation? No.

Mr. JACOWAY. But you didn't use it in your house three years ago?

Mr. MANN. In that particular house?

Mr. JACOWAY. Yes, sir. You didn't use this system of ventilation through the individual bin. Two years ago you got air from the side. Now, you have reversed your position.

Mr. MANN. That has been altogether a matter of development. The ventilator in the middle of the bin wasn't used in these sweet-potato houses till two or three years ago.

Mr. JACOWAY. I understood that the Department had also developed a machine, whereby, if you had a particularly wet year you could go out and get three or four pounds of potatoes from over your field, crush them up, press the water from them like you do in making cider, and in that way you could tell the grower how many days his potatoes would have to be heated in order to cure them.

Mr. MANN. That is in process of experiment.

Mr. JACOWAY. What will cure them this year won't cure them next year. How do you account for that?

Mr. MANN. You put them in the very best possible state for storing, and when they reach the right stage of maturity so as to get more effective curing.

Mr. JACOWAY. Isn't it a fact that a great deal of difficulty is found in trying to cure potatoes on which a heavy frost has fallen?

Mr. MANN. Yes; those potatoes should not be shipped.

The CHAIRMAN. Is there anything more on this item, Mr. Marshall?

Mr. MARSHALL. Since you are considering the ways in which the money is to be expended, we probably ought to mention the apples in the Northwest, where the principle is just the same. There have been some very heavy losses from shipments recently from the Northwest. I have before me an item appearing in the New York Packer, which says that some two or three thousand cars of apples from one of the districts in Washington were damaged recently and the extent of the damage was about 126 boxes to the car. That means something like 300,000 bushels of apples were frozen. That shows the necessity of developing these systems we have just been telling you about. This last year there has been such shortage of cars to ship from all western points that they had to hold the apples over longer than ordinarily.

Mr. ANDERSON. You have a lot of subitems under this \$30,000. Would you mind giving us an idea as to the amount you expect to spend on each of the projects under this \$30,000? That is paragraph (b), on page 244.

Mr. LIVINGSTON. You refer to refrigerator and heater cars?

Mr. ANDERSON. Yes, sir. Would you estimate these propositions?

Mr. LIVINGSTON. If it would be satisfactory, Mr. Anderson, we can insert it in the record.

Mr. ANDERSON. You can look it up and give it to me later.

Mr. LIVINGSTON. Very well.

The CHAIRMAN. It is now nearly 1 o'clock. The committee will recess until 2.30 p. m.

(Thereupon, at 12.50 p. m., the committee took a recess until 2.30 p. m.)

AFTER RECESS.

The committee met at 2.30, pursuant to recess, Hon. Gilbert N. Haugen (chairman) presiding.

BUREAU OF MARKETS—Continued.

The CHAIRMAN. Are you ready, Mr. Harrison?

Mr. HARRISON. Mr. Chairman, when we adjourned for lunch we were discussing item No. 80, on page 243. We are conducting our foreign market investigations under this item, and while we are not asking for any increase for that work, it is a matter in which the members of the committee are interested, and I think they would like to know something about our activities in the field. The Secretary is also very much interested in the project and he would like to see it developed as rapidly as possible.

The CHAIRMAN. It is a very important matter.

Mr. HARRISON. Mr. David Harrell, of Texas, was appointed live-stock commissioner for the department last summer and was sent to South America to study the possibility of developing markets there for American pure-bred live stock. He returned to this country a short time ago and will be glad to tell the committee some of his experiences and some of the very fruitful results of his work.

The CHAIRMAN. We shall be very glad to hear Mr. Harrell.

STATEMENT OF MR. DAVID HARRELL, LIVE STOCK COMMISSIONER TO SOUTH AMERICA, BUREAU OF MARKETS, DEPARTMENT OF AGRICULTURE.

Mr. HARRELL. Mr. Chairman and gentlemen, as Mr. Harrison says, the Secretary of Agriculture sent me down to South America to investigate the possibilities of the exportation of live stock from North America to South America, and to stimulate interest in that business, and accompanied by Mr. Morgan, assistant in the Bureau of Markets, I made the trip to South America. I had been in Spain and in Europe for a year and a half as the representative of the War Trade Board, and being familiar with the Spanish language and the customs of the people, and being a stockman and breeder of pure-bred cattle I thought it was an opportunity to be of some unselfish service, so I made the trip to South America, landing in Brazil, going through Brazil, Uruguay, Paraguay, Argentina, and then over the Andes to Chile.

In Brazil I found a country as large as the United States with just about, you might say, looking at it from a cattle standpoint, about where Texas was 35 years ago—a very large number of cattle and all unimproved, and the other live-stock interests are not being paid much attention to, but the Government is very much interested in the improvement of their live stock. It is a very wide field for some one to get a good trade in pure-bred live stock in the improve-

ment of the cattle of Brazil, which is a wonderful cattle country—and some one is going to develop it. The English, I found, are very active there now following their usual custom. Some of you will recall that the United States was at one time the backbone of their pure-bred trade. Later they developed the Argentine, which has more recently become the backbone of their trade. Now they realize the immense possibilities of Brazil as a cattle-raising country to be the backbone of their trade in the future, and if we don't develop it, somebody is going to do it. In fact, we had not been in Brazil over three weeks, representing the Department of Agriculture and making our investigations before two live-stock secretaries were attached to the British Embassy, investigating the importance of that industry in that country.

In Brazil we made a trip some 3,000 miles overland and into the interior where the cattle breeding grounds are, with conditions, as I say, very much like old Texas, where they raised their cattle out in the open and drove them from 200 to 1,000 miles over the prairie to market. We made that trip down through the States of Sao Paulo, Parana, Santa Catharina, Rio Grande do Sul, to Uruguay. There we found the live-stock interests very much more improved, and we also found a very receptive Government. They thought a great deal of the United States and of everything that we had done. There are great possibilities there for the improvement of live stock.

Over in Argentina they have the wonderful influence of the Palermo show, one of the greatest cattle shows in the world. At the auction sale of cattle that were shown in the Palermo show—they were all sold at auction after the show—823 Shorthorn bulls were sold at auction at an average of 6,353 pesos, money nacional—that is, Argentine money. That is about \$3,000 gold. Eight hundred and twenty-three shorthorn bulls were sold. One hundred and four Herefords averaged \$2,000. The dairy cattle averaged about \$1,200; the hogs averaged about \$375, and the sheep about \$300 in gold.

From there we went over the Andes to Chile for a short stay there and then started on our road home.

I want to say first, that before I left here the officials of the department, realizing that they could be of a great deal of value to the breeders of pure-bred cattle by making this investigation, advised that before I left for South America I call the breeders of pure-bred stock in the United States, and the secretaries of all the associations, to meet me in Chicago to take stock of what we had and get their ideas, and I don't think I have ever seen a more enthusiastic lot of men over the idea that the Government was taking some step to further their interests. As you know, and as was stated here this morning by one of the other men, export trade is the safety valve of overproduction. It is a stimulant to production, it is a stabilizer of prices, and when you open the markets of the world to any one of your vital interests, you are improving and doing something for the producer of that interest. They were very much interested, all of them, the sheep men, the hog men, the cattle men, the dairy men, and stated that they would give all the cooperation that was necessary. More than that, when I got to South America I found that they knew more about the general activities of the Department of Agriculture than I did. I had never been connected with any department before, and being a representative of the Depart-

ment of Agriculture was, I found, an open sesame wherever I went, in every Republic of South America. They believed that it was the last word in Government cooperation in assisting the producer in marketing activities, and we were asked at every place for a plan of organization for their departments. Every secretary of agriculture received us with open arms, and you know in Latin America and in all that southern country most everything that is a big business has some governmental work, so that through that department I was able, as the representative of the Department of Agriculture, to get a large amount of information to enlist the aid of the Government, and through them all, the rural societies, the agricultural societies, and all the breeders, I found wherever I went that the rating of the Department of Agriculture was AA1, and it was very gratifying to me, because I was trying to do an unselfish service and was only doing it from a breeder's standpoint.

Having gone there to investigate the possibilities of the trade, I found that the possibilities were wonderful. It is the most wonderful cattle country almost in the world. It extends from the Temperate Zone of Brazil, from the subtropics down to Uruguay, which is about the size of Missouri, and then on into Argentina, which is about equal to one-third of Europe, leaving out Russia. You can raise cattle and all kinds of live stock in the open 12 months in the year. It is a wonderful live-stock country. The agricultural and live-stock exportations of Argentina are about 80 per cent of the total exports, 90 per cent of Uruguay, and 87 per cent of Brazil. They export their coffee and rubber from Brazil, and in Argentina wheat, cattle, hides, and wool. In Uruguay it is the same way, so there is a wonderful chance for the pure-bred breeders to furnish new blood to improve the live stock of that country, particularly in cattle and hogs. They are in a very receptive mood. The Governments of all those countries have taken notice of it. Brazil has passed a law that on all pure-bred stock shipped they will refund the freight, where they bring the registration papers. They are going through a great many things that we went through in Texas when we got out the Longhorn down there and improved it with the pure-bred animal.

I came home with recommendations made after careful first-hand knowledge on the ground from the breeders, from the cattleman's, and the live-stock man's standpoint. The men in the department here have the technical knowledge and things of that kind which I don't know much about. I only know the practical end of the business, and I went over for the purpose of seeing the possibilities there, and what we need is personal contact between the breeders of North America and the breeders of South America. That personal contact can be furnished better by the Government than by any other means, because not only coming from the Department of Agriculture which stands so well, but having the stamp of approval of the Government will give you an entre and the moral support of each one of the Governments of South America, if the personal contact which is very necessary—absolutely necessary to establish a trade—is made by the Government. Then if the Department of Agriculture and the Bureau of Markets wishes to be of benefit to our great interests, to our great live-stock interests of America, they should furnish that personal contact. If you should visit our trade commissioners and consuls

and embassies throughout the world, over on the other side, you will not find very many of them that are live-stock or agricultural men. They are lawyers, doctors, merchants, manufacturers, and everything of that kind, and they are not—not in any place that I found—competent or have the time to give that personal contact that is necessary to be furnished by the Government. The balance of it, of course, will have to be done by the private interests, the interests of the breeder; therefore there will have to be some one to furnish that contact for which I am coming before you now to ask that you give, some one that will be a live-stock agricultural man, that will understand his business from that standpoint; that will know the language of the country; and that will know agriculture and live stock, that would furnish the personal contact.

The recommendations that I brought home are that there should be established—attached to the embassies, preferably the embassy in Brazil at Rio de Janeiro—a live-stock agricultural attaché, whose duty it shall be to furnish the contact between breeders of all classes of live stock here and the breeders over there; another at Buenos Aires to cover Argentina and Uruguay.

I have asked the department how much that would take and they said about \$25,000. That will furnish a good man, his traveling expenses, and the necessary means to carry on those new activities. Of course we could take in Chile and other places to work, but the places now that looked the most inviting, in which the possibilities are greatest, are Brazil in its undeveloped state, Uruguay with its partially developed state, Argentina with its very fully developed state. The sole business of these men would be to furnish the personal contact with the cattle business, to furnish information, to help with the advertising, to be the representative of the Department of Agriculture just as the trade commissioner is the representative of the Department of Commerce. He should be a good man, a nonpartisan man. He would not be a Shorthorn man or a Hereford man; he would not be a Duroc man nor a Poland-China man: he would not be a sheep man, but he would be a Government man first, and an expert in agriculture and live stock.

I came home so late that those recommendations, of course, were not included in the recommendations of the Secretary. I discussed the matter with him and told him the situation, and he agrees with me that to get any benefit from the trip we have taken and the information we have gathered—of which we have a very large amount and all of which is at the disposal of this committee in any form they want it—must be continued, and in offering my services going over there to help to do that now, and to first come here and then to go and call on the breeders again and tell them about it more in detail than you want me to take up the time to do to-day, of all the different matters that I found and of all the different items that came up over there; to explain the situation to them as fully as I could; but I am always at the service of the Department of Agriculture to carry that out. The secretary agrees that in order to get the benefit of this—and it looks like it is one of the best things that could be done by the department—you must continue the work. He has not put in any supplemental request for this appropriation, and I am coming before you as a

live-stock man, having made this investigation, to tell you the situation, and I will be glad to answer any questions or to go into any details with you in asking that you include in the estimate for the Bureau of Markets an estimate of \$25,000 for the attachés, an agricultural live-stock attaché at Rio Janeiro and one at Buenos Aires. I don't believe anything can be done that will do more toward putting a peg into our foreign trade. Right now our dollar is at a discount in Argentine because the balance of trade against us is over 50 per cent, and the live-stock trade that we can start there will be of great assistance to us.

To give you just one illustration—if you will pardon me—we met here in New York a man coming from Uruguay to buy live stock, just on a chance. We got in touch with him at once. I was taking lunch with an officer of the National City Bank before going over. He said: "There is a cattleman here from Uruguay to-day," and I got in touch with him right away, wired the Bureau of Markets to get hold of this man and put him into the right position. They put Mr. Burk, the live-stock man here, with him, and he purchased 43 head of cattle at a cost of \$65,000. Those cattle went to Uruguay and he has been most successful with that herd and has advertised from one end of South America to the other the great, valuable, expert official service that the Department of Agriculture gave him, that they saved him at least \$15,000 on his first importation of cattle. He published a booklet on it, with particulars of the cattle, and it has been one of the best things that has been done. To-day we have a telegram from this man and he is coming back. When I left Uruguay he had taken orders for 120 head. He went out with 43, and he is now coming back with an order for 125 head.

I was on the car with one of the largest breeders of Uruguay, and he told Señor Pareja, "Buy me the best two Hereford cows in America." I said, "What price?" He said, "I didn't say price; just buy the two best Hereford cows in America." He is coming back already, so I doubt if you will ever see bread cast on the waters returned so quickly, or see interest on an investment accumulate so rapidly, and I know if properly fostered and properly handled by the Pure Bred Association of America that we can develop a wonderful trade with South America.

The Statistics of the Sociedad Rural de Argentina, the Rural Society of Argentina, show that last year and for several years past the importations from Great Britain to Argentina alone in pure-bred live stock amounted to about 2,000 head each year at an average of \$3,000 a head, and it has been the backbone of their trade.

When we went down there we took with us copies of a book in Spanish showing the activities of the Department of Agriculture, the location of all the pure-bred herds in America, the climatic conditions, the relative climatic conditions that existed between North and South America; containing all of our quarantine laws for tuberculosis and all other matters relating to exportation and importation, the location of every pure-bred herd, so that a man coming in here would not have to go blindly all over the United States. They can go to England and just go around a little bit of a circle there, but they come here and they would spend months going around. We

show here by black dots [indicating] the location of every herd of cattle, hogs, and sheep, of all the different classes of cattle. That book was printed in Portuguese for Brazil and in Spanish for the balance of South America. We can't supply the demand for that book.

Mr. ANDERSON. Who gets that out?

Mr. HARRELL. The Department of Agriculture. We got it out here very shortly before I left. While I was in Chicago to take stock and meet all the breeders we had this book written and published here, and I took it along with me as advertising matter in their own language. One of the great faults of the American exporter is that he has sent his advertising over there in English, and we took this along in their own language. We had it translated here at the Pan American Union into good Portuguese and good Spanish, and we distributed those first hand to the breeders, to the ranchers, to the importers, to the different men over there.

The CHAIRMAN. Does that give the name and address of the breeders?

Mr. HARRELL. No; in the back of it is the name of the secretary and the address of every pure-bred live stock association in America. That is on the last page. We are getting letters every day about it. To-day I had an order, "Please send me 400," and the Department of State wired me at Buenos Aires, "Please return 250 copies of your publication, 200 copies in Spanish and 50 in Portuguese. We want to send them out to our consular agents in the countries which you did not visit.

For me to come in and ask for something that is not put into the appropriation bill I know you will understand that I am coming to you in the right spirit, and I believe if you go into it I will be very glad to give any of the members of this committee my time outside of the committee room, or any other time, all of the information that we could gather that will be pertinent, and I would be glad to answer any questions which you would wish to ask.

The CHAIRMAN. When was the first exportation?

Mr. HARRELL. The first exportation was made in July.

The CHAIRMAN. Do you mean 1919?

Mr. HARRELL. In 1919; yes; to that country. Mr. Parega is coming back here now.

The CHAIRMAN. Is that the first exportation from the United States?

Mr. HARRELL. That is the first large exportation made.

The CHAIRMAN. I understand that a number of representatives of the South American countries recently attended the Fat Stock Show in Chicago.

Mr. HARRELL. Yes, sir.

The CHAIRMAN. Have you any knowledge of their purchases?

Mr. HARRELL. They exchanged judges, you know, at the International Show. They had William J. Grant judging the Angus breed.

The CHAIRMAN. Have not a number of purchases been made recently?

Mr. HARRELL. There have, and are being made now, and this man is coming back here now, and it will be a great thing if we can put a man over there that will represent the live-stock interest who

understands the Brazilian and Argentine and Uruguayan countries and all of those things that are unfamiliar to the exporters here, and the personal contact there can be solved so readily that we can direct the sentiment and the building up of that trade very rapidly in that way, rather than going through the long way of finding out by hard knocks.

The CHAIRMAN. Are the inspection laws a handicap in exporting?

Mr. HARRELL. No; except in regard to the quarantine.

The CHAIRMAN. Are they shipped at the risk of the owner here, or do they buy them on their own risk?

Mr. HARRELL. They generally buy them on their own hook and insure them. Then they have to go through a 30-day quarantine in all the countries. The foot-and-mouth disease is rampant from one end of South America to the other, yet we take all the precautions here to see that they are shipped free from disease, with a clean bill of health. The foot-and-mouth disease in South America up to this time only meant a sickness of 10 days and that they were over it. It took some little time to recuperate, but it has been very fatal this year, and the losses over there are very great right now.

The CHAIRMAN. In all countries?

Mr. HARRELL. In Argentine, Uruguay, and Brazil both. The foot-and-mouth disease is all over that country.

The CHAIRMAN. The losses are much greater than they were in the past?

Mr. HARRELL. This last year they are very much greater.

The CHAIRMAN. Is the percentage larger?

Mr. HARRELL. It has never amounted to very much. The mortality had not been very high until this last year. It came in calving time, and it was a wet season and the loss was very great. This condition had the attention of the department of agriculture and the rural society there. They are trying to investigate it now.

Then they have in South America, just as we have here, the tick-free zones and the tick zones. All of Brazil has the tick. Half of Uruguay, about divided by the Rio Negro River, half is tick free and half is tick. Nearly half of Argentina is free from ticks. Only some of the provinces have the tick in them. They have some sort of tick eradication system as we do, but they have not carried it as far as we have yet.

Mr. ANDERSON. Were there any losses by foot-and-mouth disease in this exportation that you refer to?

Mr. HARRELL. No; not at all.

The CHAIRMAN. Do they not have the fever there?

Mr. HARRELL. Wherever you are above the line, which corresponds to below the line here—wherever you are in the fever district—they have to be immunized, if they come from above the line here.

The CHAIRMAN. Are the losses heavy in shipping?

Mr. HARRELL. No.

The CHAIRMAN. Do many die from fever?

Mr. HARRELL. No; very few.

The CHAIRMAN. Are they treated for it?

Mr. HARRELL. They are treated for it, but not as scientifically as we treat it. The Southern States—Texas and the other Southern States that are shipping cattle from the North to build up the herds

through inoculation—are very much ahead of the work they have been doing over there.

The CHAIRMAN. The fever has handicapped shipping?

Mr. HARRELL. Yes.

The CHAIRMAN. They are overcoming it?

Mr. HARRELL. They are overcoming that a good deal now.

Mr. YOUNG. What is the feeling of the South American people toward the building up of trade relations with our country?

Mr. HARRELL. They are very anxious for it.

Mr. YOUNG. It always appeared to me that there was a feeling of antipathy on their part to this country.

Mr. HARRELL. No; I don't think so. Of course, you hear a good deal of the "big brother" act down there, and, of course, that is a trade word. Of course, the Germans or the British will say, "Oh, well, when the United States gets a hold in here they just want to grab your country." But that is all trade work, you know.

Mr. YOUNG. The point that I want to get clear is this, Mr. Harrell: Since this war do you find the sentiment changing, and that they are more friendly toward establishing trade relations with our Nation than they were before the war?

Mr. HARRELL. Of course, I only mixed with the agricultural and live-stock interests over there, but I found a most friendly attitude toward us, particularly in Brazil and Uruguay and Chile. In Argentina there wasn't any ill feeling against us, but there wasn't so much outspoken "We want Americans."

The English have a very strong hold in South America. It has been the backbone of their pure-bred trade for a number of years, and they are going to fight tooth and toenail to see that it isn't taken away from them. We didn't preach down there that we were going to take the English trade away. We said we were going to divide it up; there is room for us. And there was one point, we made the claim, after seeing the Herefords imported from England, where they paid \$35,000 for the champion Hereford bull of England, and \$16,000 for the junior champion at the last show—in fact, nearly every pure-bred animal that has been sold in England for the last four or five years the highest prices have been paid by Argentina—and after seeing those animals, I said, "We have developed in the United States Herefords superior to the English Herefords. You men should come here and see them." When Mr. Pareja's first shipment went down there he clearly demonstrated it to them. Mr. Grant, who is one of the greatest breeders of Angus cattle, came over to judge, to the International Show here, this year, and in his first published article the first thing he said was, "I found here an American type of Hereford developed by the American breeders far superior to anything in the world." Well, I wouldn't have taken a thousand dollars in gold, as poor as I am, not to have heard their own man come over here as a judge and make such a statement as that, because we preached that from one end of Argentina to the other. And that was said by a man who was a cattle breeder, a man who knew what he was talking about.

Mr. YOUNG. Your idea, then, is that, if we can enter that field, we will be able to compete, so far as high-grade cattle are concerned, with any nation on earth?

Mr. HARRELL. Absolutely.

Mr. YOUNG. With the different breeds of thoroughbred cattle?

Mr. HARRELL. That is the reason now we have to have this personal contact. We can't leave it to the breeder over here to ship blindly. But we have got to have a trade commissioner over there. There is one class of cattle, one class of hogs, one class of horses, one class of everything else that has got to go to Brazil. They are not going to pay \$35,000 for a bull in Brazil to put to a cow worse than the old Texas cattle to breed up the stock, but they are going to pay the highest price in the world in Argentina. Then in Uruguay you have got the Herefords as the principal animal there. In Argentina it is nearly all shorthorns. We have got the class of stock. We want a good quality and type of stock for a country that is just building up; a higher class for another; the best you can possibly furnish for another, and nothing but the best. You would ruin the trade if you sent anything but the best to Argentina, so it really needs some one on the ground and some one that knows their business to furnish the contact between the two trades, to put it on a business basis.

Mr. YOUNG. Take the pure-bred breeders and the organizations in this country, have they got their herds built up to such a state of efficiency and proper numbers that they are now interested in entering a new field of endeavor and trade?

Mr. HARRELL. Absolutely, because the world's market is the safety valve for overproduction.

Mr. YOUNG. Do you think we have reached that point in our civilization where our own Nation can not absorb as rapidly as we produce these animals?

Mr. HARRELL. I think so; and if you will take the statistics published now on the exportation of meat from the United States beef, particularly, has stopped. There probably will not be much more exportation of beef and beef products from the United States. The population is growing faster than the meat supply, and if we can't send meat to that country, and that country will supply a great deal of the meat consumed in this country, let us send them the pure-bred stuff to build up their stock and open the markets for the pure-bred stock.

Mr. YOUNG. You made one statement that was rather alarming to me, and also very interesting to me, and I presume to the other members of the committee. That was that whereas in all of our foreign trade relations we had representatives to look after the commercial enterprises of the Nation, manufacturing, and so forth, in none of the nations of the world did we have any representatives that took care of agriculture.

Mr. HARRELL. Yes, sir.

Mr. YOUNG. It never occurred to me before that that was true.

Mr. HARRISON. That is true with one exception, Mr. Young. In England we now have an agricultural commissioner.

Mr. LEE. What does he represent, Mr. Harrison?

Mr. HARRISON. The Department of Agriculture.

Mr. LEE. Any special branch of the department?

Mr. HARRISON. He is attached to the Bureau of Markets, but he represents no special branch of agriculture.

Mr. HARRELL. In fact, Mr. Young, I came home and told Mr. Houston and the chief of the Bureau of Markets that I thought the

most valuable thing we did over there was that we met a class of men that had never been met by our representatives before. We talked to the breeders; we talked to the agricultural men; we talked on their own ground and about their own subject.

Mr. YOUNG. The point that impresses me is this: We are a great agricultural Nation and export a great deal of our products. This live-stock industry is quite a large industry in our own country, and I ask whether or not the Government has not overlooked its duty in opening up fields—markets for the live-stock industry of our Nation?

Mr. HARRELL. We have never been in a position up to the last few years to be able to ship; we were building up our own stock first. But this very activity on our part furnished the backbone of the trade for England for a great number of years.

Mr. YOUNG. We should take the trade of our next-door neighbors; it really belongs to us geographically.

Mr. HARRELL. But the live-stock interests of America have never been in a position to go out into the world markets until they improved their own stock; until it measured up to the standard of export. It does now. I don't think there is any part of our wealth—and we are an agricultural and live-stock country; that is the basis of a great deal of our wealth—where we have gone as far ahead as the improvement of our live stock.

Mr. YOUNG. The ordinary run of cattle in Brazil, as I understand it, are pretty much the same type of cattle as the old longhorn in Texas.

Mr. HARRELL. Very much so. I have a number of pictures that I think would interest anyone interested in live stock of the development of the original stock there. They make me feel as I did in my very young days in Texas, when we used to have to saw the horns off to get them into the car.

Mr. YOUNG. Is there anything in the climatic conditions in that South American country that would render it impossible to develop and retain a trade there? I mean, will cattle thrive after being shipped from this country down there?

Mr. HARRELL. There is nothing at all to hinder. On the contrary, one of the things that I preached was that climatic conditions and the method and manner of raising our live stock were very similar to theirs down there, and therefore our live stock coming from here should really be the live stock that they would want, showing them that a great many of our cattle were raised on the range, raised in the pastures; whereas in Great Britain they are stall fed, raised on small farms, on high-priced land and under entirely different conditions, and that cattle imported from this country, raised under similar conditions to those they have down there, should really be better. Then we are closer together, and while they are on that side of the Equator and we are on this the conditions are more similar than in any other country.

Mr. YOUNG. As a practical live-stock man, coming in touch with these organizations of live-stock breeders in this country, do you say to the committee that they feel an interest that the Government do something that will help them open up this field to them, and that they are ready to cooperate should the Government undertake this venture?

Mr. HARRELL. Absolutely. I don't think I ever saw as enthusiastic a lot of men as when I called on the secretary of the National Swine Breeders' Association, the Dairymen's Association, the secretary of the Livestock Associations. They said they were ready to go the limit. They saw the opportunity and were keenly alive to it.

Mr. TINCHER. Have you ever thought of a proposition of a demonstration herd?

Mr. HARRELL. Yes; I have.

Mr. TINCHER. Is there enough enthusiasm in the local organizations to do that?

Mr. HARRELL. I am going down now to Chicago to suggest ways and means for the National Swine Breeders' Association to put that over: they will have to do that; the Government can't do it.

Just to show you how that comes—how our work comes in there—our trade representative connected with the American Embassy in Rio de Janeiro sent us a report that the British Chamber of Commerce in England had sent the following telegram out, that they desired in the interests of British trade to establish a demonstration farm of all the breeds of live stock, "and we ask you to present it to the minister of agriculture of Brazil; and if they will give us a concession of land, the British breeders, with the support of the British Government, will establish this herd there, so that they can see everything in that line." They went right back and said: "The Brazilian Government is not disposed to make a concession of that kind. The Department of Agriculture of the United States Government has two representatives here now offering free the services of the Department of Agriculture and distributing literature that is very beneficial to the breeders," and that they would have to turn down the proposition of giving any concessions to the British Government, and I felt pretty good about it. I have that right here. It shows how quickly they acted as soon as we went there. The British were going after that trade.

Mr. TINCHER. You are going to try to get the swine proposition; don't you think it would be a good idea to have demonstration herds of cattle of different breeds?

Mr. HARRELL. Yes. I am going to send out wires as soon as I am out of here—at the convenience of you gentlemen, as soon as you are through with me here—I am going right to Chicago to those representatives of the Breeders' Association, and I will give them the benefit of all the work that we did down there, with the suggestions that we have.

Part of my recommendations to the Secretary of Agriculture and to the heads of those departments were that in my opinion, from first-hand knowledge on the ground, that you must have two attachés, agricultural live-stock attachés; that they must speak the language and they must know agriculture and live stock.

Mr. YORNG. You want swine men—hog men—cattlemen: and can you get those fellows that speak the language?

Mr. HARRELL. Oh, yes.

Mr. YORNG. You have been living down there in Texas where you talk Mexican a good deal.

Mr. HARRELL. Yes.

Mr. LEE. Are we establishing banks in that country?

Mr. HARRELL. The National City Bank and the First National Bank, of Boston, and the Guarantee Bank are now getting financial arrangements made so that we are ahead of nearly everybody else. In Sao Paulo, which is the Chicago of Brazil, the National City Bank has now organized a farm loan company, a cattle loan association of 1,000 contros—a contro is \$250—and it has been oversubscribed two times, just through these activities, to furnish the means to promote the live-stock industry. The First National Bank, of Boston, the National City Bank, and the Guarantee Bank are all opening very good connections there.

Mr. LEE. I think that is very important.

Mr. HARRELL. It is very important, because in foreign commerce we must have the financial facilities. Then we must have the ships. Now, we are short on passenger service. I sent half a dozen telegrams to the effect that the most important thing now for South American trade is a dependable, regular, first-class, mail and passenger service. We were promised that a good while ago but never have secured it yet. That is very necessary. We have had the freight ships. I had word from the Shipping Board that 13 ships had been allocated to South American trade fitted for the shipment of pure-bred cattle to the east and west coasts, so we will be well taken care of there.

Mr. YOUNG. Before we leave the matter of banking institutions, in the organization of these cattle-loan associations down there by the National City Bank and others, have any of the local people taken stock in that, or is that fully financed in this country?

Mr. HARRELL. It is all financed over there. They just gave this organization so many contros, all furnished by the banks and the business men. They have got as many Brazilians and as many men interested down there as they could. There is a Brazilian here now whom we met down there and talked the whole situation over with. He has organized a company of, I think, three or four million dollars for South American trade. Those men were all taken into this organization of cattle men. I have the prospectus—if I haven't it here, I have it at home—I have the prospectus of the cattle-loan association there, with many interesting phases of the cattle business and all that business down there.

The CHAIRMAN. What is the Department of Commerce doing along this line?

Mr. HARRELL. Yes, sir; we worked together with those men. Mr. Phillipi, the commercial attaché at Rio de Janeiro, was very helpful indeed to us. He is the man who has been sending this information to us, but his time is all taken. He is not a cattle man, not an agricultural man, but he is doing splendid work there in commerce.

The CHAIRMAN. How many are employed by the department?

Mr. HARRELL. A stenographer and himself.

The CHAIRMAN. One in each country?

Mr. HARRELL. I don't know now. Dr. Kline is in Buenos Aires, and he is a splendid man there. Dr. Schurz—William F. Schurz—was in Paraguay when I went there. They are both first-class men. It is very hard to find a better man than Mr. Phillipi. He is attached to the American Embassy, but doesn't have the office out where it is located, in the outskirts of the town, but is downtown, and his office is entitled "Commercial Attaché, American Embassy." He

is a very busy man, a very efficient man. Dr. Kline has his office in one of the big buildings downtown in Buenos Aires.

The CHAIRMAN. What is required is a practical, experienced breeder, a cattleman.

Mr. HARRELL. Really they ought to have their offices with the commercial attaché, one to help the other in innumerable ways. The live-stock agricultural commissioner should help the commercial attaché, and the commercial attaché should help him. It would make a good double-team if you could get high-class men, get good men, and each would have just as much as they could possibly do to stimulate trade, because all the countries of the world are after that trade.

South America hasn't suffered during the war; they have made money, lots of money, and there is going to be a world trade there. and all the countries are wide awake to it and they are sending men and advertising matter, and we have got to meet it if we are going to get the trade.

Mr. YOUNG. What is the exchange relation between this country and Brazil, for instance? What is our exchange rate?

Mr. HARRELL. I really don't know right now. Of course, the South American money, I will say—for example, Chilean money—fluctuates 5 per cent in one day.

Mr. YOUNG. Argentina is a great cattle country?

Mr. HARRELL. Yes.

Mr. YOUNG. Do they have a higher grade of cattle than they do in Brazil?

Mr. HARRELL. Yes; there are no better cattle in the world than in Argentina.

Mr. YOUNG. Who developed that?

Mr. HARRELL. England. They bought the top wherever they could find it, regardless of cost. The result has been they have wonderful cattle down there; but they want new blood. They want it every year, and there is no reason why they couldn't come and get new blood from our country. The hog development all over South America has been neglected, and it is a wonderful chance for the hog man.

The CHAIRMAN. Are there any other questions?

Mr. HEFLIN. You said you had a list of the names of cattle-breeding places in the United States?

Mr. HARRELL. Yes, sir.

Mr. HEFLIN. Of thoroughbred cattle?

Mr. HARRELL. Yes, sir.

Mr. HEFLIN. How is that industry developing in the South?

Mr. HARRELL. It is developing very rapidly. The improvement in the South has been very rapid from the old long horn that we used to drive up the trail, till we have now as modern cattle as there are in the United States. In fact, a carload of Texas Herefords won the championship at the international year before last.

Mr. HEFLIN. At Demopolis, Ala., I noticed last fall they have a sale of Hereford bulls.

Mr. HARRELL. The South was the great winner in the international this year. The champion Hereford bull came from Kentucky and the champion shorthorn, I think, came from Georgia. I was in

South America when it was held, but I noticed the headlines, "The South swept the International."

Mr. HEFLIN. The industry is developing very rapidly in my district.

The CHAIRMAN. If that is all, we will take up item 81.

Mr. HARRISON. I would like to state, Mr. Chairman, that Mr. Harrell returned from South America long after these estimates were prepared, and that he has appeared before the committee and explained the situation to you gentlemen with the entire approval of the Secretary. The Secretary would like to see the foreign marketing work developed as rapidly as it may be possible, and especially to conduct some follow-up in South America in order that full benefit may be derived from Mr. Harrell's trip.

MONDAY, JANUARY 12, 1920.

MORNING SESSION.

The CHAIRMAN. Congressman Osborne wishes to make a statement. We shall be glad to hear from him.

Mr. LIVINGSTON. The item to which Mr. Osborne addresses himself is No. 81, on page 246, "For collecting and distributing, by telegraph, mail, and otherwise, timely information on the supply, commercial movement, disposition, and market prices of fruits and vegetables, \$269,600."

**STATEMENT OF HON. HENRY Z. OSBORNE, A REPRESENTATIVE
IN CONGRESS FROM THE STATE OF CALIFORNIA.**

Mr. OSBORNE. Mr. Chairman and members of the Committee on Agriculture, I appear before your committee in regard to the Bureau of Markets, in which the people of my State, California, are very much interested. The production of vegetables and fruits in California is, as you know, very large, and everything that conduces to make its production and delivery in the markets of the country more economical is of value to the whole country. In speaking for the interests of my own State, therefore, I feel that I am speaking in the interests of the entire country. I have a number of telegrams here this morning from Los Angeles and adjacent country in regard to the leased-wire market reports of the Department of Agriculture. When I was home between the two sessions of this Congress, I was visited by delegations or representatives of the various farm and horticultural organizations that are interested and are shipping vegetables and fruits in very large quantities, and they felt very badly about the discontinuance of the leased-wire market reports.

Mr. McLAUGHLIN of Michigan. Were they dealers or growers?

Mr. OSBORNE. They are growers. These organizations are all organizations of growers.

The CHAIRMAN. They are cooperative, are they not?

Mr. OSBORNE. They are cooperative.

The CHAIRMAN. The dealer and the grower is the same man.

Mr. OSBORNE. That is the case with most, if not all, of these organizations. They are cooperative organizations and divide the

expense and do away as far as may be with the middlemen. That is notably the case with the California Fruit Growers' Exchange, which handles citrus fruit exclusively. They have been organized a great many years and are composed entirely of the growers of the fruit; and they are powerful enough, and their organization and their production is sufficiently concentrated, so that they can take care of these things themselves very fully; but the organizations of vegetable growers are not so well situated with respect to looking out for these things.

Mr. WILSON. I do not know anything about it, but I would like to have you verify this statement: I have heard from people who have come from that part of the country that most of the vegetable growers in your section of the State are Japanese. Is that true?

Mr. OSBORNE. Oh, no. The Japanese are growers, but I think the Japanese production is mostly consumed in the local markets. The large producers are American people. Our production in the Imperial Valley down there, in the southeastern county of California, where the production is extremely large, is by Americans, the quantity produced by the Japanese being comparatively small.

Mr. McLAUGHLIN of Michigan. What is that town down in the southeastern part of California, shown on the map there—the terminus of the leased-wire system, which has been discontinued?

Mr. OSBORNE. That is Brawley, in the Imperial Valley, where the cantaloupe is produced. The valley is a valley something like the mouth of the Nile. It is a country that has been built up by accumulating silt for all time, and it is only within a few years that it has been cultivated at all. They have run in the water from the Colorado River, and have 4,000 or 5,000 acres of production. A very large proportion of the vegetables shipped here to the East in the winter time comes from the Imperial Valley.

I have from the Los Angeles Chamber of Commerce, which is the leading organization of the Southwest, with a membership of about 5,000 leading business men of that country, this telegram, which says:

LOS ANGELES, CALIF., January 11, 1920.

Hon. H. Z. OSBORNE,

House of Representatives, Washington, D. C.:

Telegraphic market news reports on fruits and vegetables more urgently needed California than any other State in Union. California, by far leading State in commercial production and shipping fresh fruits and vegetables, is at great distance from markets and dependable in large measure on reliable market reports, which can only be furnished properly by disinterested Governmental agency like Bureau Markets. Withdrawal this year telegraphic news service Government leased wire Kansas City west to California has been irreparable loss. California fruit and vegetable interests; over 40,000 carloads vegetables annually shipped east out California, 8,000 to 15,000 carloads cantaloupes, almost 50,000 cars citrus fruits; and California is leading dry bean and honey-producing State, with over five and one-half million of latter produced annually, and from five to eight million bushel dry beans. Service on last two commodities has been eliminated entirely owing lack appropriations. Tonnage, 1919, 23,581,000; value, \$278,101,000. We urge strongly sufficient appropriation be included for Bureau Markets for this specific purpose, releasing their leased-wire service to California for fruits, vegetables, and placing this market on same satisfactory basis as held last year, which we understand calls for not less than \$75,000.

WIGGINS,

Los Angeles Chamber of Commerce.

I have several other telegrams to the same effect, which I will not read to you. That is the purpose for which I appear before you, gentlemen. I do not know of any agency of the Government which affects our growing interests that is more popular than the Bureau of Markets and this leased-wire service. I thank you for your courtesy, and I hope you will see your way clear to make a liberal appropriation for the Bureau of Markets and especially for this leased-wire service.

Mr. McLAUGHLIN of Michigan. For many years the California Fruit Growers' Exchange had its own wires?

Mr. OSBORNE. Yes.

Mr. McLAUGHLIN of Michigan. Do they continue that?

Mr. OSBORNE. Yes; they are continuing that wire service.

Mr. McLAUGHLIN of Michigan. To the same extent as before the Government took it up?

Mr. OSBORNE. I am not informed as to that. The citrus fruit business keeps expanding all the time. In Southern California the first year I was there the total shipment was 1,500 carloads. Last year they shipped 50,000 carloads. It keeps growing all the time, and I suppose the demands for looking out for markets increase with the production to some extent. I will leave these telegrams with the committee.

(The telegrams referred to are as follows:)

LOS ANGELES, CALIF., *January 10, 1920.*

H. Z. OSBORNE,

Member of Congress, Washington, D. C.:

California produces enormous quantities of vegetables and fruits in excess of local requirements for which market must be found, and it is of the utmost importance to the industries concerned that reliable and accurate information pertaining to conditions and prices prevailing at distant markets be disseminated with as little delay as possible. This work can be efficiently carried on only by the Government and we request you endeavor have restored leased-wire service by Bureau of Markets which discontinued account lack of funds. Absence this service proving serious handicap.

CALIFORNIA VEGETABLE UNION.

LOS ANGELES, CALIF., *January 12, 1920.*

Hon. H. Z. OSBORNE,

House of Representatives, Washington, D. C.:

California generally badly in need of telegraphic reports from Bureau of Markets. We urge strongly the appropriation of sufficient funds for said bureau to enable it to lease wire from Kansas City to California and give us service as during last year.

VAIL Co.

LOS ANGELES, CALIF., *January 11, 1920.*

Hon. H. Z. OSBORNE,

Washington, D. C.:

We urge particularly that sufficient appropriation be given Bureau of Markets to extend the leased wire to Pacific coast and enable service to be rendered as good as last year on fruits and vegetables. No doubt curtailing of funds greatly hampers valuable service which we all need.

W. E. McCASLIN Co.

LOS ANGELES, CALIF., January 10, 1919.

HENRY Z. OSBORNE,

House of Representatives, Washington, D. C.:

Wish to call attention to extreme importance fruit and vegetable interests in California and great good Bureau of Markets has done. Urge appropriation for Bureau of Markets be continued.

J. B. VAILE,

President Los Angeles County Farm Bureau.

LOS ANGELES, CALIF., January 10, 1919.

H. Z. OSBORNE,

Representative from California,

House Office Building, Washington, D. C.:

Understand recommendation of Committee for appropriation for Bureau Market comes up consideration Monday. We earnestly request extra effort be made to extend Government leased wire Kansas City to Pacific coast, as data furnished with reference fruits and vegetables was found invaluable. Information given these reports is similar that provided for in Government distribution cantaloupes and will be sorely missed if discontinued.

RANDOLPH MARKETING Co.,

LOS ANGELES, CALIF., January 10, 1919.

Congressman H. Z. OSBORNE,

Washington, D. C.:

Are informed that House committee will consider legislation Monday affecting Department of Agriculture activities, including Bureau of Markets. Can you not arrange appear personally? Exert your influence toward securing increased appropriations. Any restrictions would prove disastrous to California shippers, and, in fact, ruin many cantaloupe and vegetable growers.

L. K. SMALL Co.,

MONDAY, JANUARY 12, 1920.

AFTERNOON SESSION.

The CHAIRMAN. We will take No. 81 next, Mr. Haugen.

Mr. TINCHER. That is a \$50,000 increase?

Mr. LIVINGSTON. Yes; the item reads as follows:

For collecting and distributing, by telegraph, mail, and otherwise timely information on the supply, commercial movement, disposition, and market prices of fruits and vegetables, \$269,600.

This is an apparent increase of \$19,600, but, taking into consideration the transfers from the lump fund to the statutory roll, it involves an actual increase of \$50,000. Mr. Chairman, I will ask Mr. Sherman, who is in charge of the market news service on fruits and vegetables in Washington, to speak to the committee with reference to this item. If I may say so, the background which Mr. Sherman will give with reference to this market news service applies to similar news service work in other items. As he may discuss it rather fully, it may not be necessary later to take up the other news-service items in great detail unless the committee especially desires it.

The CHAIRMAN. We will be glad to hear Mr. Sherman.

**STATEMENT OF MR. WELLS A. SHERMAN, SPECIALIST IN CHARGE
OF FRUIT AND VEGETABLE DIVISION, BUREAU OF MARKETS,
DEPARTMENT OF AGRICULTURE.**

Mr. SHERMAN. I am not certain how far you wish me to go into detail, because I went into detail on this a year ago and also two years ago when the news service was first organized, and if the members of the committee remember or care to refer to the minutes of the previous hearings they will have the background which, as I gave it then, is the same as we have now.

The CHAIRMAN. Do you wish to add to the statement of Representative Osborne this morning about the service in the West?

Mr. SHERMAN. Yes, sir.

The CHAIRMAN. You have charge of the leased wires?

Mr. SHERMAN. Yes, sir; I have charge of that part of the work which relates to fruits and vegetables.

The CHAIRMAN. The black line [referring to map] indicates the leased wires?

Mr. SHERMAN. No, sir. That represents that part of the leased-wire system which we have discontinued since the war appropriations were cut off.

As to the background of the whole thing, the purpose is a daily interchange of telegraphic information, marketing information, up to the minute, between all parts of the country, between the marketing centers and the shipping points. That is the basis of the whole service.

Historically you remember that was the particular thing which the gentlemen in the Senate had in mind when they first voted an appropriation to the Department of Agriculture for this purpose. The first move was to appropriate \$25,000 to put a division of markets in the Bureau of Crop Estimates for this very thing, to give quick telegraphic information. The result of that effort, as you know, was later a general item of \$50,000, out of which the Bureau of Markets was organized, and this was one of the first Nation-wide services that grew out of our first investigations.

I will say briefly, in order that you may get the right background, that this work had been developed to about one-third of what we consider its complete and proper proportions when the war broke out. Then, when Congress asked the Department of Agriculture what it could do to help in the war emergency, we replied that we could help in the stimulating of production of perishables through assisting producers to reach more efficiency and save waste, that we could help the situation by developing our news service to its full capacity, and Congress gave \$750,000 to us for that purpose. So we had for two fiscal years \$750,000 for this work.

You may remember in the informal discussions which took place when you first appropriated \$139,000 for this work in the fiscal year 1915, that the question came up in the committee as to what this work would ultimately cost. I said to the committee, "If you go into this it will be just as impossible to cut it out as it will the weather service, because people will come to depend on it in the same way, and we know that no one else could give this service as a Federal agency would give it; no one else can get the information." We get

it from all the railroad division superintendents in the United States. Every day at the close of the day's business a statement of the number of carloads of fruit and vegetables originated on each road with their points of origin and destination. We realized that it was useless to go into this work unless we could beat any commercial agency in the world. With this accuracy of information that we could get, we made it our business to do it. If the Government could not do it better than anybody else the Government had no business in the field.

When you gave a larger amount of money for war-time purposes, it was, I will say frankly, unfortunate that it was tied up with the war activities and so considered an emergency appropriation to meet an emergency, because we did with that emergency fund what we had been doing with the increased appropriation each year.

At informal discussions that first year, you will remember, the chairman asked how much we thought it would cost when completed. I said it would cost about half a million dollars. That was a guess at the future. It was not put in the record, because we did not want to commit ourselves. He said that if we succeeded in making this a nation-wide service that would not be half of what he thought it would cost. We have never put a million dollars into the service, but we had three-quarters of a million dollars for two years, and we developed on the spur of the moment, and with the war-emergency conditions, with the conditions of employment all against us, with our trained young men going into military service, we developed the news service to its nation-wide proportions, and when it was at its height we had for our market news service on fruits and vegetables a leased telegraphic wire system represented by what you see on this map in green and in black. The green ribbon represents what remains; the black represents what we have discontinued since the war-emergency appropriations were cut off. The unfortunate phase of the situation is this, that I am confident, knowing the action of the committee year by year, that we would now have almost as much as that amount of money if there had been no war. In cutting out the war-emergency appropriations the committee cut this service down so that what remains does not represent the legitimate growth of the work. We have had to cut a good deal of the life out of it. You will realize that we could not cut out our sources of information from the railroads, whatever it may cost. These reports from railroad superintendents must be kept up. That is the basis of the information. That is the distinctive feature that nobody else can get. If we discontinue that relationship when the roads go back to private ownership it may be impossible to reestablish it. It costs \$20,000 a year for telegraphic tolls to get those railroad reports. That is a fixed charge.

Then we have to maintain our permanent organizations in the large markets, because if we do not do that we have no price information to distribute. Therefore, no matter how far we have to reduce the service, we must maintain our own permanent representative in cities like Boston, New York, Chicago, Cleveland, and the 13 or 14 cities where we still have permanent offices. They must be maintained or we have no price information to distribute. We can not reduce the cost of that.

With those two fixed items, when we reduce expenditures we have to cut down the field service, the traveling itinerant which we render

to the producer, which is the most valuable part, but the only flexible part. We cut down expenses by discontinuing wires. The volume of the information that we can afford to send into these producing areas is greatly reduced since we have to send it at regular Government rates.

The black lines represent the leased wires, which have been discontinued, and the green lines, as I stated a moment ago, represent the present leased-wire system for the fruit and vegetable service.

Mr. JONES. The record should show where they are.

Mr. SHERMAN. The black lines extend from Washington to Atlanta, Birmingham, Memphis, New Orleans, Jacksonville, and Orlando, Fla. We had a leased wire to Orlando for six months during the year, because the volume of information that we were sending to that point made it cheaper to put on a leased wire than to have it carried by a commercial wire at the Government rates. We maintained a wire for eight months in the year from New York to Rochester. The wire to Buffalo is cut out entirely. This one [indicating] represents the discontinuance of our permanent news office at Columbus, Ohio; at Indianapolis, Ind.; at Fargo, N. Dak.; at Des Moines, Iowa; at Oklahoma City; Fort Worth; and Houston and to all points west of Kansas City. We originally had leased-wire connections from Kansas City to Denver, Butte, Spokane, San Francisco, Los Angeles, with temporary wires during the heavy shipping season to the Imperial Valley and out to Greeley, Colo. The wire running up to Greeley was leased about eight months during the period when we had a man there to distribute information on cabbage and potatoes.

You see the leased wire cost is on a mileage basis, and if we give the fruit and vegetable shippers a good market news service, which aids them effectively in the distribution of their products, the volume of information to be transmitted is so great that we can afford to pay for leased-wire service, for a 12-hour day, and maintain two telegraphers at every point. These men work on 7-hour shifts, overlapping in the middle of the day.

The CHAIRMAN. What is the mileage rate?

Mr. SHERMAN. \$12 a mile.

The CHAIRMAN. Is that the uniform charge?

Mr. SHERMAN. That is the uniform charge per mile, and that is just one-half what we had to pay for the short-leased wire that we had tried out experimentally just before the war broke out.

The CHAIRMAN. That is half the cost?

Mr. SHERMAN. Half of the regular rate to the Government. The American Telegraph & Telephone Co. made this half rate to the Government during the war, and we are on notice——

The CHAIRMAN. Do you mean during the war it cost just half of the regular rate?

Mr. SHERMAN. I mean that the leased wire is costing us now just half what it cost before the war, and half what it will cost as soon as the war emergency is over.

The CHAIRMAN. How do you account for that?

Mr. SHERMAN. The American Telegraph & Telephone Co. placed its facilities at the disposal of the Government during the war emergency, and the war emergency is still on.

Mr. TINCHER. Is it your idea in asking for this money to partly take care of that western leased-wire service?

Mr. SHERMAN. If we go back to the prewar basis the \$50,000 will be used for increased work in the West and on the Pacific coast; \$50,000 would not pay for the leased wires.

Mr. TINCHER. The gentleman from California was asking that we restore the leased-wire service.

Mr. SHERMAN. And he told you it would take \$75,000 to do it.

Mr. TINCHER. Would \$75,000 do it?

Mr. SHERMAN. We figure that on a prewar basis it will take two or three times the \$75,000 to take care of all the present leased-wire mileage and to lease wires and pay incidental expenses from Kansas to the coast.

The CHAIRMAN. Are we to understand that it will cost twice that amount after peace is declared; \$12 now and \$24 after peace is declared?

Mr. SHERMAN. Yes; if it goes back to the basis which prevailed before war was declared, unless they make concessions.

Mr. TINCHER. You started to say that we were on notice.

Mr. SHERMAN. When we took it up with them and asked if they would make a permanent concession to the Government, they said that they would not promise anything of the sort.

The CHAIRMAN. Is the \$75,000 based on the present rate or the increased rate?

Mr. SHERMAN. The present rate.

The CHAIRMAN. If peace should be declared the cost would increase?

Mr. SHERMAN. The expense would go up and we could not maintain the leased wires. That must have been Representative Osborne's assumption when he estimated that \$75,000 would care for it.

Mr. McLAUGHLIN of Michigan. You do not really lease and operate those lines, do you? Is it not simply a contract that you have with the company to send your business at a certain rate?

Mr. SHERMAN. It is a contract with the company by which at a certain hour in the morning this connection is set up throughout the country, the system is set apart for our exclusive use for 12 hours, we furnishing our own operators, and the minute the 12 hours is up our offices are disconnected and during the night the lines are used for their own business. That actually gives us 12 hours' exclusive use of their wires.

Mr. TINCHER. And, unfortunately, your proposition compels the leasing of these wires for next year.

Mr. SHERMAN. That brings me back again to the question as to what we need for a satisfactory service. We had not estimated for it. You will remember that the Secretary last year estimated \$360,000 for this service. That was lump sum, I think. I explained to the committee that the service had developed to nation-wide proportions and we felt that it would cut very much out of the service if the appropriation was less than that. The amount given us, however, was only \$250,000. When the question came up as to whether anything could be done to help out on the cost of living, the estimate was referred to the Appropriations Committee, as a deficiency estimate, but the judgment of your committee was followed, and the appropriation for this work was not further increased. It has been twice before Congress. It is for you to say. We will make the best use we can of the money allowed us.

Mr. JONES. If this increase of \$50,000 is granted do you expect to keep up the leased wires from Kansas City to the West?

Mr. SHERMAN. With that, if possible, we will reopen a permanent station at Fort Worth, but we will not connect with it by leased wire. It will be a permanent point for the distribution of such information as we can afford to send out at Government rates. The balance will be spent on the Pacific coast.

Mr. JONES. If peace is declared and the prices are doubled, what will you do?

Mr. SHERMAN. It is a question whether we would be able to maintain as much of these wires as we have shown here in green. Our idea is that it will cut out the leased wires materially. First, this leased wire to Rochester and then a part of the year the leased wire from Chicago to Minneapolis and the branch to Omaha.

Mr. JONES. You will either do that or ask for a supplemental appropriation.

Mr. SHERMAN. I do not know whether we should. Should we? If the committee thinks it necessary—

Mr. JONES. I am asking you what your plan is. If the department knows that the rates will be doubled after peace is declared, if the policy is established by the committee, do you expect to use that as a basis to make good on the cost?

Mr. SHERMAN. I had no such idea. We would simply cut the service down, as we did heretofore when the appropriation was reduced.

Mr. TINCER. If we increase that appropriation for some legitimate purpose, we will have to get the money somewhere else. We are spending more money than we are taking in; so that if we increase an appropriation, we must do so at the expense of some other appropriation. Would you suggest from what we could take this \$75,000 with the least hurt all around?

Mr. SHERMAN. I may say that my responsibility runs only to these projects in the Bureau of Markets.

Mr. TINCER. Which is to get the money?

Mr. SHERMAN. I beg your pardon. My attitude is not that of trying to get all the money. If I had the Treasury of the United States at my command I would not suggest to you gentlemen that you appropriate as much money for this service as you did during the war emergency. My own idea is that, considering that we have disbanded the service and let the men go and that it is extremely difficult to get competent men in the department in the face of outside competition, I would not want to put this work back to its former proportions in too short a time. If you want to know how much money you can put into this to make it render the service it was intended to render, I would mention a half a million dollars, which would mean that you would have to—the present estimate is \$426,000. We have \$376,000 now.

We could not do it with half a million dollars quite. If you will give us the \$75,000 that Representative Osborne requested, that with what we have will enable us to render satisfactory service, assuming that the leased-wire rate remains as it is. When that goes up, we will have to content ourselves by getting out such information as we can at Government rate. But I have this to say with reference to

the expenditure of any increase that is put into this item, we have not sold our furniture, but have transferred some of it to other projects, and we have our equipment at Fort Worth; we have all our equipment on the Pacific coast and all of the money that we get in addition to what we have now goes into the distribution of this information to the people that want it. Our collecting machinery remains practically intact—our machinery for getting information. We must maintain it, even if our news is distributed very inadequately, and any additional money you give us will be for information distributed by leased wire or by sending more information by commercial wire in case the leased wire becomes too expensive.

The CHAIRMAN. Have you found that leasing the wires is more economical?

Mr. SHERMAN. It has been a great saving. It was a saving in 1918 over what it would have been at Government rates, and you must remember, in order to get our information over the wires, that we code our stuff just as we did when using commercial wires, through the arbitrary five-letter code, each code word taking the place on an average of three words.

Mr. TINCHER. You furnish these reports on fruits and vegetables. Just what crops do you cover?

Mr. SHERMAN. Of course, the practice varies tremendously with the time of the year. We began originally with strawberries, peaches, tomatoes, and cantaloupes. Then we gradually extended it to cover most of the important perishable fruits and vegetables, and during the war emergency we took up dry beans. The market news service on live stock and meats is handled by other men, and that on dairy products is handled by still other men. The information has to be collected at different hours of the day and has to be released at different hours of the day. While the basic service is the same, at the same time the machinery has to be entirely different. It must be based upon the particular marketing machinery of that particular industry.

Mr. McLAUGHLIN of Michigan. A number of years ago the citrus-fruit growers of California had one or more very large organizations and they had a big telegraphic service. Are they still maintaining that for themselves?

Mr. SHERMAN. They are; and we have never touched the citrus products on the Pacific coast, and spend no money on news service on citrus products, because that industry has been getting along without it. I will say there that the independents of the citrus-fruit industry, who handle 25 to 30 per cent of the products, asked us to put in a market news service on citrus fruits so as to put them on a basis of equality with the exchange, but we have never done so. It would take a lot of money, more than we have ever been ready to expend, and we felt that the industry was so well organized and that the industry had such good market news service developed that our services were not needed. They have plenty of money and plenty of men and are able to get along without our assistance. We did establish a citrus-fruit service on citrus fruits in Florida for one year, and there was a tremendous protest on account of our inability to do it again.

Mr. TINCHER. To what extent do you furnish information to the live-stock and meat-producing industry?

Mr. LIVINGSTON. That is the next item.

Mr. SHERMAN. These little black triangles on the map represent the field stations in heavy-producing areas which have been discontinued or will be dropped this year and will not be reopened under our reduced appropriation.

Wherever you see that black triangle on the map you have a heavy producing area, shipping large amounts of one commodity, where we have rendered local service; that is to say, for instance, at the Laurinburg, N. C., station, a cantaloupe shipping station, we have distributed there all of the information that could be gotten on that commodity. It means that we had a local mailing list which covered the industry in this territory. It means that the county agents were notified that our man was coming in. Here is one thing that the county agent does: The county agent in every one of these points has been called upon to let his people know that this service was at their command, and that they would be put on the mailing list by request. It means that during the movement of crops from that locality our man was able to issue every day, between 12 and 2 o'clock, a statement to his people showing what the shipments were out of their own territory, what the shipments were out of every competing shipping territory, where they were going, what the prices were on all the different markets, what cars had arrived during the preceding 24 hours, and what the prices were on the North Carolina cantaloupes and on those from competing areas, and, of course, that is where we feel the service is most important. We feel that it is at just these points in the country that we are really rendering service.

Mr. YOUNG. Points like that are discontinued?

Mr. SHERMAN. Yes; every one where you see the black triangle.

Mr. YOUNG. That is a point where you believe you ought to have a wire service?

Mr. SHERMAN. That is where it would be of very great service.

Mr. YOUNG. If we cut down this part of the service, the producer does not get the information that he wants and the consumer does not get the advantage of the price. I am against this system if that is what we are going to do.

Mr. SHERMAN. This [indicating] represents what we can carry with the present appropriation. A number of these green pins represent the most important field stations, and these we can maintain.

Mr. YOUNG. As I understood it, the reason for organizing this whole system of the Bureau of Markets was to give to the farmer a better system by which he could market his products. That is why I advocated it.

Mr. SHERMAN. Absolutely.

Mr. YOUNG. We had a false, uneconomical system which drove out of existence many industries on the farm.

Mr. SHERMAN. That is true.

Mr. YOUNG. To meet that situation we brought into existence a Bureau of Markets. This telegraphic information is a part of that system. It had two objects in view: First, in order that the farmer down at this point that you are going to cut out might have information as to what is going on in these wholesale markets, and, in turn, that the consumer in these wholesale markets might know what is being produced in the agricultural sections.

Mr. SHERMAN. What is being shipped, and the local f. o. b. price?

Mr. YOUNG. The idea was that by that means we would eliminate some of these middlemen, who ought to be eliminated as an economic proposition.

Mr. SHERMAN. We have reduced their profits.

Mr. YOUNG. So that the man that actually produced a thing on the farm would be certain to have a fair price for it when it reached the consumer. If you cut out this information at the points that you indicate—the producing centers—you thereby enable the consumer in the big centers to have an advantage over him; in other words, instead of helping him to get a fair price for his product, you enable the other fellow to gouge him. I want the work to be done out in the producing centers.

Mr. SHERMAN. That is the tragic part of the situation as it exists, that the only place where you can contract and expand readily is at the producing end. That means a good many men traveling; that means a good many men with salaries and expense accounts; and the minute you begin to cut down, you cut down the field men. Next year we expect to have from 8 to 10 field men doing that work, and they will cover about 50 points, so you see we will still do a lot of it. We must maintain these city stations. At Cincinnati, St. Louis, and Kansas City they have mailing lists down to this southern territory. When the information is received from there, however, it is not as prompt and as valuable as where we can put a man right in the territory. But, as I explained, you see, we have got to keep getting our railroad information and maintain our city offices, or we would not have the information to distribute at all.

Mr. YOUNG. How much money do you need to keep the producing centers going?

Mr. SHERMAN. You see our expenses are uncertain now. I said a few moments ago that a half million dollars would do it, but I immediately felt that I put it too low, with the constantly increasing expense, travel, supplies, and the uncertainty of express rates and railroad rates if Government control is discontinued.

Mr. YOUNG. At one end of my district and in the adjoining counties is a great tomato-producing section—Smith County, for example—which illustrates the other sections of the country. I know that some of these industries have grown up, prospered, and have been made possible very largely by reason of this market-news service. They have the land that will produce the stuff, and they are willing to produce it; but under the old system I have seen magnificent orchards cut out and put into cotton. It was not that the world does not need this stuff, but we had such an uneconomical system of reaching the markets of the world that people could not successfully follow raising potatoes, for illustration, or tomatoes. After the establishment of this market-news service, however, those communities have been prospering. We feel the need of this service, and I would hate to see those communities denied this information that has been sufficient to measure the difference between adversity and prosperity.

Mr. SHERMAN. You happen to be near the local office in Jacksonville, Tex. That has been such a valuable office that it will be continued.

Mr. YOUNG. You are supplying this service to some in my district.

Mr. SHERMAN. That is one of the 40 or 50 points where we will maintain the service.

The CHAIRMAN. How long will it take for you to finish, Mr. Sherman? There is a roll call.

Mr. SHERMAN. That will depend on the wishes of the committee.

The CHAIRMAN. We want to go into this matter rather fully.

Mr. SHERMAN. It would take some little time.

The CHAIRMAN. If it is agreeable, we will take a recess until tomorrow and will hear you further then.

(Thereupon, at 5.20 o'clock p. m., the committee recessed until Tuesday, January 13, at 10 o'clock a. m.)

COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Tuesday, January 13, 1920.

AFTER RECESS.

BUREAU OF MARKETS—Continued.

The committee reconvened at 2 o'clock p. m., pursuant to the taking of recess, Hon. Gilbert N. Haugen (chairman) presiding.

**STATEMENT OF MR. WELLS A. SHERMAN, SPECIALIST IN CHARGE
OF FRUIT AND VEGETABLE DIVISION, BUREAU OF MARKETS,
DEPARTMENT OF AGRICULTURE—Continued.**

The CHAIRMAN. I believe you explained to what extent the market news service on fruit and vegetables had been cut off. Will you state the territory which is covered at the present time and which would be covered under an increased appropriation?

Mr. SHERMAN. At the present time we have 12 permanent market stations in the 12 most important markets—Boston, New York, Philadelphia, Pittsburgh, Cleveland, Detroit, Cincinnati, Chicago, Minneapolis, St. Louis, Kansas City, and Omaha. We have no permanent full-fledged market stations west of Kansas City and Omaha. We are, however, maintaining one man each, with the nucleus of an office, retaining the rented quarters, at Los Angeles, San Francisco, and Portland, and we are keeping a man at Spokane during the apple-market season, which is a long one there, extending over a period of seven or eight months.

The CHAIRMAN. Is he employed at Spokane during the apple-market season?

Mr. SHERMAN. Yes, sir.

The CHAIRMAN. Reports are sent over the wire, but not over leased wire?

Mr. SHERMAN. They are sent by commercial wire?

The CHAIRMAN. At the Government rate?

Mr. SHERMAN. At the regular Government rate. Those three stations are being operated now on the same basis as the temporary field station is operated during the producing season; that is to say,

each one is being sent daily telegraphic news on one particular crop—that is, the crop they are most interested in in that locality; but they are not being given the full news service which we are able to distribute as far as our leased-wire service extends.

The CHAIRMAN. If the increase is granted, what territory will be covered?

Mr. SHERMAN. When the estimates were prepared the idea was we could increase the amount sent to Pacific coast points to probably double the amount we are sending them now, but not that we could reestablish that leased-wire service. We also thought it would enable us to maintain a man at Fort Worth and through him we can reach this large territory in the Southwest, which is not reached effectively at all under the present arrangement.

The CHAIRMAN. To the west of Minneapolis?

Mr. SHERMAN. Yes. We have a permanent office at Minneapolis, but we have taken out the station at Fargo and cut off that leased-wire service.

The CHAIRMAN. Do you contemplate restoring that?

Mr. SHERMAN. No, sir; there is not business enough at Fargo to justify us in keeping a man there more than three or four months during the potato-marketing season. We have a man stationed there while the crop is moving heavily, but, unless we have a materially increased appropriation we could not afford to keep a man there permanently either for this work or inspection work. I may say that since those projects of the Bureau of Markets have recently been put into a single division, of which I am in charge, that enables us to bring about a very close cooperation between the news service and the inspection service. And in some of those places where we have discontinued the news service we are still getting a report on the market from the inspector, but we can not use it as a distributing point for news because the inspector is busy climbing in and out of the cars all day and can not run off bulletins and attend to that sort of work at the same time.

You asked me to develop the points that Representative Osborne made to the committee. Representative Osborne spoke to you about the value of the work, especially to the vegetable and soft-fruit shippers in the vicinity of Los Angeles in southern California. I am not certain whether it was put in the record yesterday or not, but we have rendered no service on citrus fruits in that country.

The cantaloupe situation of the Imperial Valley is a unique one and is one of the first places where this service in its experimental stage was established and has had very great usefulness. There are some interesting figures connected with the development of that work which are really striking. I do not know whether you care for them in the record or not, but this is the way that industry had been running from the time they discovered they had a wonderful cantaloupe country up to the present time: About 1905 the industry first came on the map as being of some importance, with 297 carloads of cantaloupes shipped out of Imperial Valley. In 1906 they doubled that and shipped out 577 cars. In 1907 they had 644 cars; in 1908, 1,891. Then they had a bad year and they dropped, in 1909, to 1,411. Then in 1910 they went up to 1,621; in 1911, 2,580; in 1912, 2,887. and they were still making money for everybody almost

every year. Then in 1913 they had 3,502 cars, and the results were rather unfortunate. Nobody made anything in particular.

In 1914 the momentum of the industry carried it up to 4,446 cars and they had big losses and people began to say that the industry in the valley was going to pieces and they never could get their investment back. There had been a tremendous investment put in there in packing houses, icing and shipping sheds, and all that sort of thing. So in 1915 the Bureau of Markets came in with its marketing service just being organized and helped them on the distribution problem. They succeeded in spreading the crop out a little better over the country, and in 1915 they marketed 4,729 carloads, and they made a little money, although they had 300 more cars than they did in the disastrous year before. In 1916 it dropped 100 cars to 4,617. In 1917 they went up to 5,007 cars, with good results. In 1918 they had bad weather and dropped to 4,398 cars. In 1919 they went up to 7,616 cars to the 10th of July, when our office closed and there were probably about 100 cars shipped after that, or about 7,700 cars, which were marketed successfully, with large profits to the growers and distributors. Everybody in the deal made money on the cantaloupes and practically 4,000 cars more went on the market than were taken in the first disastrous year.

Of course, the buying power of the country had increased, there was no doubt of that, and we must not omit that consideration; but the people who handled the cantaloupes, the 18 big firms, through whom all of these cantaloupes are distributed, say emphatically that they never would have financed that acreage—and they do finance that acreage, because they begin to make advances against the acreage from the time it is planted—if it had not been for the assurance they gained by having this service to depend on in helping them distribute the crop. They have gotten into hundreds of towns, I may say, that never were reached otherwise and would not have been reached but for the news service.

Mr. ANDERSON. Do you control the sending of shipments into different localities in proportion to what you understand to be the consumptive capacity of the place?

Mr. SHERMAN. The control is exercised by these 18 firms—23 this last year. There were 18 the year I was down there, and there are 23 now, every one of which has a permanent local representative right there in the valley, and we give them the movements from day to day, the number of cars out, the number distributed to each market, and the number arriving in each market. And when you consider those cars are in transit, on the average, for about 8 to 10 days, they have an opportunity to follow those cars up with diversion orders and to switch them into every little market where they can get an order; and, of course, they have also the telegraph inquiries and offers going out from their home offices in Chicago, Pittsburgh, and Cincinnati trying to place those cars as they are coming over the rails.

Mr. ANDERSON. Is there any agreement as to the division of territory or the relative proportion of the crop which is to be shipped to various markets?

Mr. SHERMAN. Not so far as we know, but there is a very general knowledge now that when they get above a certain number of cars going into almost any of these markets, with the exact history of three years before them, they can tell practically to a certainty when any

particular market is being overloaded, and the man who has six cars en route to Chicago, if he sees so many carloads already on the market and more cars likely to arrive in Chicago in the next few days, will make a desperate effort to sell somewhere else.

Mr. ANDERSON. So that, without having any agreement, they get all the advantages of an agreement, which would be a violation of the Clayton antitrust law?

Mr. SHERMAN. Apparently there is not a division of the territory, because we find right here in the city of Washington the cantaloupes of five or six distributors all offered in competition with each other. One day you may find Weaver's products predominate and next week Girard's, and they overlap all the time.

Of course, there are certain firms that never ship a car except into the home office in Chicago. One of the big distributors does this, and if he disposes of a car otherwise it goes out from Chicago on order from somewhere else. Others, one or two, have headquarters in Los Angeles and are selling largely in the East; of course, doing all of it by wire. An interesting little point came up one day when I happened to be in Brawley, Calif., during the marketing season. I noticed many rather small towns taking a carload of cantaloupes occasionally. I knew that Knoxville and Chattanooga, Tenn., were larger towns than some of the towns that were taking a carload of cantaloupes, and I said, "Why is it a carload of cantaloupes never seems to be placed in either one of those two markets?" The best reason I was able to find was this: That there was not one of the 18 distributors who knew a firm in either of those towns he would trust for a carload of cantaloupes, and they never tried to sell any there, and the only cantaloupes going into those markets were express shipments from Cincinnati, or something like that. So this distribution hinged, to a certain extent, in having their attention attracted to the fact there were potential markets for their cantaloupes, so that those men have interested themselves and found out who was in business in those towns, and last year carloads of California cantaloupes went into each of those towns.

The CHAIRMAN. Are the firms you refer to local firms?

Mr. SHERMAN. No, sir; two or three of them have headquarters in Chicago. Some are in Pittsburgh, Columbus, and Cincinnati. All these commission firms put their money in the growing and marketing of the crop under contract, so that when the cantaloupes are grown they will take care of the distribution at a fixed percentage charge.

The CHAIRMAN. Are they in the commission business or are they merchants?

Mr. SHERMAN. They are in the commission business and they handle those cantaloupes.

The CHAIRMAN. Do they buy direct or sell on commission?

Mr. SHERMAN. They sell on commission. The grower pays 15 per cent for distributing that crop and interest on the money which they advance him. A contract is made to handle so many acres for each grower. It is an individual contract with each grower to make certain advances at different stages of the game, certain advances per crate.

Last season, of course, we rendered the same service—that is, where the cantaloupe movements start in the beginning of the year.

We have field stations in Georgia and Florida and then the next important western point is away over here in the Salt River Valley, around Phoenix, in Maricopa County, Ariz., and then we move out to Turlock, Calif., and then come over there finally to Rocky Ford. That is the itinerary of that man, serving those places in rotation.

The CHAIRMAN. A number of urgent requests were received last year. We did the best we could and we will do that again.

Mr. SHERMAN. Mr. Young raised the question yesterday about the policy or the necessity of discontinuing so much of our work in the field where it comes home directly to the grower, right in his home community. These black triangles on the map represent field stations where we have had men stationed for short periods during the heavy producing season and where we will not be able to continue the service with the present appropriation. I might say when the appropriation was reduced we had no hint given us by the committee of how you preferred we should curtail, and it was perfectly evident we had to discontinue the service on certain crops entirely.

The CHAIRMAN. That is a matter, of course, that the committee must leave to the discretion of the department.

Mr. SHERMAN. That had to be a matter of administrative judgment, and we dropped entirely the minor crops which had been the last ones taken on and discontinued the service on grapes, asparagus, and bunched vegetables, prunes, pears, spinach, and dried beans. Of course, as you know, when we discontinue a service on a crop all of the field stations pertaining to that crop go off automatically. So the number of these black triangles represents the points at which crops were reported and have gone out automatically with the elimination of the service on these crops. When we decided we could not continue the crop service, we did not attempt to continue the stations and when the shipping season opened in western New York we had a telegram from the grape growers in which they said they did not know what to do with the crop this year, that the wineries were off the market and they could not sell their crop to the wineries as they had in the past and they had no connections in the cities and did not know to whom to sell their grapes and were practically at the mercy of the juice factories to take what they offered. And they told us they lost a thousand dollars a day because of not getting this information that we had given to them. I do not know whether that is true or not, but we took their word for it, and, of course, they think when we come and tell you about that it will be all right.

I do not want to bore the committee by reading very much, but, if I may, let me give you just two or three sentences from letters of potato growers in different parts of the country which show you how people handling the more staple fruits and vegetables, where they did not think at first this service would be so successful, are referring to it. I will read two sentences from a letter from the secretary of the Aroostook County Potato Growers' Association, of Houlton, Me., the most concentrated potato territory in the United States, where we are now maintaining a field station during the fall shipping season. We circularized our whole mailing list there, something like 2,000 farmers, asking them how soon we could discontinue the service. This man says:

I wish to take this opportunity to express to you my gratitude for the very complete market reports we are receiving from day to day. In my opinion

there is nothing the Government could do for the farmers and shippers of potatoes which would be of any more benefit to them than this market-report system.

Mr. ANDERSON. Who is this gentleman?

Mr. SHERMAN. This is from Guy C. Porter, at Houlton, Me., secretary of the Aroostook County Potato Growers' Association. I think there are about 3,000,000 bushels of potatoes grown there in one county. It is the heaviest potato-producing county in the United States. That is the testimony of the men who have an eight months' or a nine months' shipping season. Now to drop down to Charleston, S. C., we have an entirely different proposition, where the potatoes are an early crop and they have to market them a day or two after they are dug, and where there is active competition with the growers, north and south of them competing for the early market. Let me give you this background. Most of the potatoes that go out of Charleston are offered by two organizations, one having about 75 per cent of the business and the other most of the remaining 25 per cent. We circularized this territory, as we have circularized all these territories, telling them the service is going to be reduced this spring and asking them how much it is worth to them in their neighborhood and whether it is worth while for us to try to cut it short or whether they can get along without the service, and they have come back with letters, each one in his own way, telling us what we have done for him, and we find some places where they thought nothing was going to hurt them so much as to be compelled to do without that information as they expect to be guided by it. This is the testimony from the organization that controls a little less than 25 per cent. The people who have about 75 per cent of the business said:

You do not need to send a man back to Charleston this year, if it is a matter of difficulty under your appropriation, because we can pay for a wire from Washington and get the information we want from that point.

The fellows who have 75 per cent of the business can afford to pay for getting the information by wire from Washington, but in that case they would have it and the smaller fellow would not. The smaller fellow says:

We would consider that we would be badly handicapped without the Government bulletin on "Daily Movement of Vegetable Crops," not only from here, but from other sections. This bulletin has been of great assistance to us in distributing these crops here, and when we are moving our crops we wait on them eagerly each morning. Without the bulletin we would have no way of knowing what Florida or points south have shipped; neither would we know the quantity points north of us have shipped. To give you an illustration of the potato movement of last season, this bulletin showed that Florida, Georgia, South Carolina, North Carolina, and Virginia were all shipping potatoes at one time. It was like watching a barometer to see the falling off of Florida and the gradual increase of South Carolina and Virginia.

They have competitors north and south of them. [Continuing reading:]

The movement had been running about 200 cars of new potatoes daily. We have not this bulletin before us, but our recollection is that suddenly the movement jumped to 500 cars, which includes a heavy movement from Virginia. Our market here had been running around \$8 f. o. b.

That is, \$8 f. o. b. Charleston, for the high-priced early potatoes they had last year. [Continuing reading:]

When we saw this Government report we knew that some one was going to get hurt, unless the movement was widely distributed.

That is the point I was making a few moments ago relative to the cantaloupe situation, unless those potatoes along the coast are widely distributed, somebody is going to get hurt, and the crop naturally gravitates to New York, because the New York commission merchants finance so much of it. [Reading:]

We hunted for new markets like we never hunted before. We took any reasonable offer—

That is the answer as to whether it hurts the consumer. [Continuing reading:]

We hunted for new markets like we never hunted before. We took any reasonable offer, and the final results showed a very good average, even under such a heavy movement. The eastern markets fell down badly when these potatoes arrived, some of them declined \$5 and \$6 per barrel.

Anyone who has had experience in distributing these crops knows how important these Government bulletins are, and if the Government wants to do the farmers a real service they will under no circumstances discontinue them.

Just to make this complete, I want to read two sentences of testimony from Mr. McLaughlin's territory, from Mr. C. A. Wagner, of Athens, Mich.:

My having the market report on potatoes last season enabled me to obtain 40 cents per bushel more for my crop of about 1,400 bushels than I would have received if I had taken the prices offered by the local buyers.

That is by telling him what he could get if he shipped outside. I won't burden your record with any more letters, unless you want them, but I can give you as many as you choose.

The CHAIRMAN. We have gone over this thoroughly; we will take up the next item.

Mr. SHERMAN. I had an answer here, which I hoped the committee would take a little seriously, to Mr. Tincher's question as to where to get the money for increasing the appropriation for this work.

I understand that is, perhaps, a joking question, but the figures on that are just a little surprising. I had never figured this until last night. I have figured many times in a rough way the saving to the growers and the public of this country, but I had never figured it in terms of the income tax. Those distributors from the Imperial Valley, every one of them, are big firms, whose business run up into the hundreds of thousands and millions of dollars, and every dollar you add to their income, in legitimate commissions or new business, is putting money right into the Treasury in the form of an income tax. Four thousand cars of additional cantaloupes, which they say we are responsible for, 4,000 cars of cantaloupes last year, were worth over \$1,000 a car, or \$4,000,000. The commissions, the legitimate, contract commissions for distributing that are 15 per cent, or \$600,000 of legitimate commissions on new business. Added to the earnings of firms whose income is running into the hundreds of thousands of dollars anyhow, an average of 25 per cent income tax is a modest estimate. That gives you \$150,000 paid into the Treasury of the United States on the increased business in one little community.

Mr. ANDERSON. What is your average income tax?

Mr. SHERMAN. I say, with the surtaxes, it is probably at least 25 per cent. With reference to the growers who have actually got that \$4,000,000, assuming only the minimum 4 per cent, you have \$160,000

more; or you have over \$300,000 of increased revenue derived from the increased business in one spot on one crop, which represents about 1 per cent of this service. If there is any bunk in those figures, I really do not know it; I have not put it there.

The Texas onion growers tell you it is worth \$1,000,000 a year to this onion industry; and so the thing goes on multiplying itself all over the country. In other words, this particular goose is laying some golden eggs right now, but she is laying at about one-half capacity for the lack of a few thousand dollars to make the service practically complete again.

Mr. McLAUGHLIN of Michigan. I never paid much attention to those large incomes. Is 25 per cent the tax on an income of \$600,000?

Mr. SHERMAN. That income of \$600,000 is distributed over about 20 firms, all of which do an enormous business. That is simply a guess. Probably it would be more than that for any one firm, very much more.

That is all I have to say.

The CHAIRMAN. Thank you, Mr. Sherman.

Mr. LIVINGSTON. The next item is No. 82, "To enable the Secretary of Agriculture to carry into effect until their termination the provisions of the proclamations of the President of June 18 and September 6, 1918, and the regulations thereunder relating to the stockyard industry," etc. The item is dropped in the estimates because the authority for the work will be discontinued with the proclamation of peace. In fact, the work has practically been discontinued at this time. That is to say, we have a sufficient amount of money to continue it for a month or six weeks more only.

Mr. ANDERSON. What has been accomplished by the stockyards supervision? That is what we want to know. What do we get for our money?

Mr. LIVINGSTON. The work that has been done this fiscal year was the same type of work as that done the last fiscal year, which was financed out of funds appropriated in connection with the food-control act. This item, as I understand it, was put in the Agricultural appropriation bill in the Senate in order to keep intact the machinery that was set up during war times, in order that there would be a nucleus to continue the provisions of that act until the enactment of the Kenyon or Kendrick bills. It was put in, my understanding is, at the instance of the Senate. I will be very glad to have Mr. Hall give you a brief statement.

The CHAIRMAN. You did not furnish us with any information last year because you were then in process of organization. It occurred to me that you might want to give a report now.

Mr. LIVINGSTON. I personally must plead ignorance, because I was not connected with that phase of the organization at that time. Mr. Hall, I am sure, can give you information regarding that.

The CHAIRMAN. We will be glad to hear Mr. Hall.

**FURTHER STATEMENT OF MR. LOUIS D. HALL, IN CHARGE OF THE
DIVISION OF LIVE STOCK, MEATS, AND ANIMAL BY-PRODUCTS,
BUREAU OF MARKETS, DEPARTMENT OF AGRICULTURE.**

Mr. HALL. As Mr. Harrison stated yesterday, this work was financed during the previous fiscal year out of funds allotted from

the President's emergency fund. Supervisors were stationed at all the principal live-stock markets, and regulations were issued by the President on the recommendation of the Department of Agriculture. The duty of the local supervisors was to see that those regulations were enforced, and the purpose of the regulations was to prevent unfair practices, combinations, deception, and overcharges for feed or service, and requiring the stockyard companies to furnish adequate and ample facilities to care for the stock that comes into those yards. The Secretary has included the report of the activities in his annual report, both for the previous fiscal year and the present fiscal year.

The CHAIRMAN. What was done?

Mr. HALL. We found in a good many of the stock yards that they were not furnishing sufficient pens and were not keeping them clean and that the terminal facilities were not sufficient to get the stock into the yards after they had reached the city in which the market was located. For instance, at Indianapolis the president of the live-stock exchange said they were going to build a monument to the Bureau of Markets, because for 25 years they had been trying to correct delays on the terminal railroad there, conditions which caused delays of from 6 to 8 to 24 hours in getting stock into the yards and unloaded after they reached Indianapolis, and within three weeks after the supervisor was stationed there that condition had been corrected by the addition of more switch engines, crews, and a better system of handling the business, so that it only took 45 minutes to 2 hours to get that stock in and saved a tremendous amount of shrinkage. He stated that item alone at Indianapolis would pay the cost of our supervision over all markets.

We found the packers, commission men, speculators, and traders and the stock yards themselves were practicing irregularities which had grown up and come to be recognized as more or less customary and therefore winked at. It would take a long time to enumerate all of them, but I would be glad to give you as many illustrations as time permits.

We found at Kansas City, for instance, it was costing commission men a couple of thousand dollars a year in tips to the yard men, the men employed by the stockyard companies who were supposed to unload the stock as it arrived on the market, and through a system of tipping certain commission firms had been favored in the pens that were assigned to them and in the promptness with which the stock was driven to the pens and weighed after being sold. And through our instrumentality a rule was passed by the exchange forbidding another practice at the Chicago Stockyards: The exchange, even previous to the license going into effect, established a rule stating in view of the fact that the license was going to go into effect, and since the Government doubtless would look with disfavor upon the trade in crippled hogs it would be forbidden on and after that date for any commission firm to employ any crippled hog trader or to use the services of any crippled hog trader in handling stock. Previous to that it was customary for the man who made it a business of dealing in crippled hogs and cattle to help the commission men yard and handle their stock, and it has been suspected more than suspected, I might say, that many of these men had not limited their dealings altogether to crippled stock; that is to say, if there were not enough crippled stock

in a load it is said they went so far as to take a club and make a few more crippled hogs.

All the way from Boston to Portland, Oreg., and from Jacksonville, Fla., to San Francisco we are dealing with large and small irregularities. The Senate Committee on Agriculture has our record of a large number of cases in which commission firms have been found to overcharge their customers for feed. The commission firms are not supposed to make any profit on feed; they are supposed to order feed from the stockyards company and charge their patrons for the feed they order. Instead of that, some firms have been ordering a great deal more feed than the stock needed and then, as they said, they salvaged what was left and sold it to the next fellow. In other words, they were charging two, three, four, or five farmers for the same hay. Some fairly high-class men had indulged in the practice, and they seemed to think it was one of the perquisites of the business, and when the matter was called to their attention admitted that they did not enjoy doing business that way, but that they found competition had forced them into it.

The CHAIRMAN. Do you class that as an irregularity—stealing hay? Is that just a mere irregularity? [Laughter.]

Mr. HALL. Sufficient to cause the revocation of the license. And one firm that had been engaged in that irregularity has been out of business for a good many months and there are some other cases of that kind now pending.

Mr. HEFLIN. The chairman wishes to know what you would regard as a serious offense.

The CHAIRMAN. Do you regard that as a serious offense?

Mr. HALL. I do, Mr. Chairman.

The CHAIRMAN. What did you do about it?

Mr. HALL. We have no authority to send men to jail; that is entirely within the province of the local courts or the district courts. We had two alternatives in cases of that kind, to revoke their license or to settle the matter with them.

The CHAIRMAN. How did you settle it?

Mr. HALL. To take a more prominent case, Rappal Bros. & Quinn, of Chicago, we found during a period since January 1, 1918, they had accumulated something like \$20,000 or \$21,000 in profits of that kind and during a period of three years it had amounted to something like \$60,000. There was the alternative of revoking their license, in which case they would keep the money, or requiring them to restore that money to the shippers and permit them to remain in business. It was impossible for the Secretary of Agriculture to do both. If he revoked their license, he would have had no further recourse as to the restoring of the funds. And under all the circumstances, which were carefully gone into by the various officials concerned in the administration of the law, it was decided to require them to restore the money to their shippers instead of revoking the license. And shortly after that the Chicago Live Stock Exchange called these people before it and found them guilty of a violation of the exchange regulations and expelled them; so that they are out of business now as promptly and probably more so than if the Secretary had revoked the license.

The CHAIRMAN. I infer that the Federal Government found them guilty and then simply withdrew their license, when it would seem as

though they should have been sent to the penitentiary rather than be let off and the cases compromised. That is being done in a good many instances.

Mr. HALL. If the district attorney should see fit, he could still proceed against them.

The CHAIRMAN. Why send anybody out there unless you enforce the law?

• Mr. HALL. The Department of Agriculture is not charged, in the enforcement of this law, with sending licensees to the penitentiary.

The CHAIRMAN. What is the use of investigating if nobody is going to be punished?

Mr. HALL. Apparently the practice has been stopped.

The CHAIRMAN. Is it not the duty of the Department of Agriculture to turn the matter over to the Department of Justice, in order that justice may be meted out?

Mr. HALL. I think so; but I do not think the Department of Justice has any jurisdiction over that case, because similar cases which have gone to the Supreme Court have been found to be not within the jurisdiction of the Department of Justice.

The CHAIRMAN. We had better dispense with the whole service if you are simply running down evil practices.

Mr. HALL. I should say that practice has been stopped and other practices likewise have been stopped.

The CHAIRMAN. Is it the policy of the Department of Agriculture to stop here—not to punish the crime, but to agree that stopping these evil practices will be sufficient?

Mr. HALL. I should want to refer that question to our solicitor. Personally, I think that a willful case of such overcharging is a crime which deserves very severe punishment.

The CHAIRMAN. Evidently it did not receive very serious consideration.

Mr. HALL. It did receive serious consideration.

Mr. McLAUGHLIN of Michigan. After all, I think the stealing of money in Chicago is an offense against the State and should be prosecuted in the State courts. I agree with the witness that it is not a matter for the Department of Justice.

Mr. HARRISON. Mr. Chairman, you understand we merely had the power to revoke their license. It was a question of whether we should revoke their license, in which case we would not have been able to return these excess profits to the customers. There was \$20,000 involved in this case; we gave them an opportunity to make restitution, and they made restitution, the \$20,000 being sent back to the producers.

The CHAIRMAN. Was the crime committed during the term of the license?

Mr. HALL. Chiefly before the license went into effect.

Mr. HEFLIN. And the evil practice has been discontinued?

Mr. HALL. Other cases involving over \$80,000 are now under consideration, and in fact in litigation, and an appeal has been taken from the district court in Chicago and notices have been sent out and our supervisors have been so instructed that such practices have been stopped, saving a great many thousands of dollars more than a fine would amount to, in the amount that is actually being returned to the pockets of the stock raisers. I regret, with the chair-

man, that the laws of our land are not such that there is some Federal agency which can quickly and effectively punish offenses of that kind, because I assure you I consider it a great deal more than a mere irregularity.

The CHAIRMAN. The filing of a complaint is not limited to individual citizens; an officer of a department has just as much right to file a complaint as anybody else. It is a question of what the purpose of the department is after running down these frauds, whether they propose to punish those who are guilty or simply compromise and let them go.

Mr. HARRISON. The purpose of the department is to enforce the law as passed by Congress. The department has enforced the law; it is still enforcing it. If you wish to go into the legal phases of the proposition, we will have the solicitor come up here and discuss it with you.

The CHAIRMAN. I do not think we need to discuss it with the solicitor; we know what the punishment is for stealing.

Mr. LIVINGSTON. I wish to state for the record that the Solicitor of the Department of Agriculture has been before the Senate committee on this particular matter and has given a full explanation of it from the standpoint of the legal points involved.

The CHAIRMAN. I have heard a good deal of criticism in the stockyards by the commission men as to the way the matter was disposed of; I was trying to find out the facts about the matter.

Mr. HALL. You are quite right, but I might point out that the commission men have been very inconsistent in the matter in this way: They objected because the Department of Agriculture did not proceed vigorously enough against Rappal Bros., and they are now objecting because the department is proceeding too vigorously against some six or eight other commission firms that are guilty of the same thing, although not on as large a scale.

Mr. HARRISON. They combined together and enjoined the department from compelling the restitution of the funds, and the case has been carried to the court of appeals.

Mr. McLAUGHLIN of Michigan. What was the decision of the court?

Mr. HARRISON. The decision was against the department; that is, the court decided that the department could not revoke a license solely on the ground that a licensee failed to restore the overcharges to the parties in interest.

Mr. HALL. Could not revoke the license because of a refusal to restore the funds.

The CHAIRMAN. That would all depend on the terms of the license, of course.

Mr. HARRISON. The Senate committee has within the last week passed a resolution asking for a full report on these overcharge cases. That report is in course of preparation and we will be glad to send the committee a copy of it as soon as it is available.

The CHAIRMAN. The report will do no good. The matter has been disposed of. That is water that has gone over the wheel.

Mr. HALL. It is water that is still going.

The CHAIRMAN. As I understood you, the matter had been settled.

Mr. HEFLIN. How long has it been since the proposition was disposed of?

Mr. HALL. That was last June, Mr. Hefflin.

Mr. LIVINGSTON. It is in the courts now.

Mr. HALL. I was speaking of the Rappal case that had been settled. The others are in the courts. Perhaps I can give a better illustration of the effect of supervision on the improvement of conditions. Our investigations in Indianapolis indicated that a large speculator had a monopoly, practically, of the sheep and lamb trade there by virtue of a secret agreement with Swift & Co.'s buyer whereby this speculator would find out in the morning what Swift & Co. would pay for the sheep, and then he would go out and buy accordingly, and Swift & Co. would not buy from the members of the trade, except this one man. A hearing has been held on that case. The attorney general of Indiana entered the complaint. A full hearing has been held, and the finding has not yet been formally issued, but action will be taken very shortly, and we think that practice has been stopped.

The CHAIRMAN. Is that the only conspiracy in the trade they found?

Mr. HALL. We dealt with it simply as a matter of violation of the regulations under the food-control act—an unfair practice.

The CHAIRMAN. Is that the only unfair practice that has been found?

Mr. HALL. By no means.

The CHAIRMAN. As to monopoly, agreements in restraint of trade, and violations of the antitrust laws?

Mr. HALL. I do not recall whether there are others that would come under the pale of the Sherman Act or not, Mr. Chairman. I would, of course, have to consult the solicitor's office on that legal point. Most of our work has dealt with the general improvement of conditions in the stockyards and the relations of the commission men, packers, and traders. We have had a force of auditors going through their books, and we have found all manner of irregularities. One commission man at Chicago, for instance, was taking out a few dollars from each shipment, simply stealing it out of the returns, and falsified the returns to cover it up. He plead guilty, his license was surrendered and canceled, and the money involved was restored to its owners. We found one man in Kansas City had been stealing cattle outright.

The CHAIRMAN. Was there any effort made to punish him?

Mr. HALL. His license was revoked.

The CHAIRMAN. That was the only punishment?

Mr. HALL. Yes, sir. I am inclined to think, if my memory serves me right, that he was proceeded against in the local courts. I know they either proposed to take or have taken action against him. I would be glad to enter into the record a very full statement of the work on supervision of the stockyards during the past year, if the chairman desires it. Such a report has been filed with the chief and could readily be made a part of the record.

The CHAIRMAN. I do not believe it is necessary to put any lengthy statement in the record, but if you wish to refer to some specific cases you may put them in.

Mr. HALL. I will answer any other questions here you wish to ask.

The CHAIRMAN. I believe that is all.

Mr. LIVINGSTON. The next item, Mr. Chairman, is No. 83, on page 248, "To enable the Secretary of Agriculture to gather from stock-

men, live-stock associations, State live-stock and agricultural boards," and so forth, "information relative to the number of different classes and grades of marketable live stock," and so forth, and I will ask Mr. Hall to discuss that item also. There is an apparent increase here of \$34,000, but, considering the transfers to the statutory roll, the actual increase is \$50,000, the same amount that was asked for in connection with the item on the market news service for fruits and vegetables.

Mr. HALL. The general features of the live stock and meat information source are very similar to those of the market news service on fruits and vegetables, concerning which Mr. Sherman has spoken in considerable detail. It is not my purpose to repeat a great deal of what Mr. Sherman has said, since it applies equally to both services, but the present organization and service so far as live stock and meats are concerned has been curtailed to five offices at the stock-yards in the Middle West and three branch offices at the large meat distributing centers in the East. On the 1st of July, like the fruit and vegetable information service, we were obliged to cut off all wires to offices west of the Missouri River, and I would like to show you at a glance, on a little map, just what that has meant to the live-stock industry of the United States. The green areas, including the States east of the Dakotas, Nebraska, Kansas, and Oklahoma, and including the north of Arkansas, Tennessee, parts of Mississippi and Alabama, North Carolina, and the remainder of the States north and east of those, are now receiving the daily telegraphic service of the bureau. All of the white area, which includes a great part of the live stock producing country of the United States, the western range, and the mountain and Pacific coast region, and a great part of the Gulf States and nearly all of Texas, practically all of Texas, are now without the information which they were receiving previous to the 1st of July.

The cutting off of this service brought forth a flood of protests from representative organizations and individuals among the live-stock trade. In California, for instance, the California Cattlemen's Association passed a resolution, which I understand was filed at the time with this committee, to the effect that the market news service had their hearty approval; that it had been of great assistance to producers and distributors, and would become more and more so by preventing extreme fluctuations in live-stock conditions, by establishing closer relations between the market prices of live stock and meats, and by facilitating and encouraging the production and purchase and slaughter of live stock in the market centers, and so on.

Mr. ANDERSON. What is the date of that letter?

Mr. HALL. This is a resolution of the association, the date of which I do not have here; but, if I am not mistaken, it was about May 15, 1919. I also have one from the Retail Butchers' Exchange, of Alameda County, the county in which Oakland, Calif., across the bay from San Francisco, is located. This exchange, by the way, or possibly the San Francisco Butchers' Board of Trade, I think it was, offered to raise the money to finance the continuation of this service provided the Government would continue to render the service, at their expense, but we found we did not have the legal authority to do that even though we had been willing to do so if we could.

The Florida Cattlemen's Association, the Texas Cattle Raisers' Association, the American National Live Stock Association—I am

not naming these in the order of their importance, but just as they occur to me offhand—have all passed resolutions, and a great many others I have not named have passed resolutions, indorsing the service, and stating specifically that it has been of value to the producer, and, incidentally, in some of the resolutions reference is made to the benefit to the consumers and to the distributors. I would be glad to file representative selections from those letters and resolutions if the committee wishes.

The CHAIRMAN. I understood you to say you could not furnish this information to California producers unless it was paid for by the Government?

Mr. HALL. We can send it to them collect over the commercial wire.

The CHAIRMAN. I understand that they expressed a desire to pay that expense?

Mr. HALL. What they wanted was to maintain the leased-wire service. We would not be in a position to accept contributions of that sort.

Mr. MCKINLEY. They could hire the wire, could they not?

Mr. HALL. Yes. It would require, however, building up and maintaining a rather expensive organization, which no one State could handle as a physical matter.

Mr. LIVINGSTON. May I suggest that I think they wanted to employ a man under our supervision. We did not feel we could accept that sort of service, because we do not want to be responsible for an individual whose salary is paid by some one else. We feel that that would be an unwise public policy.

The CHAIRMAN. Do they have the reports you send out?

Mr. LIVINGSTON. We send those out to anyone who wishes to receive them and is willing to pay for them.

Mr. ANDERSON. I understood you to say you sent them out to anybody who was willing to pay for them. To what extent are these reports being paid for?

Mr. HALL. To a very small extent, Mr. Anderson. I can not give the exact figures, but I think the live-stock and meat wires go to not over a dozen or 15 concerns in that way. Most of those who desire service by wire get it through the telegraph companies that give a monthly service—what they call a commercial news department service, at so much per month. It is much cheaper that way than it is to take it direct from the Bureau of Markets. But the Bureau of Markets supplies the information that the Western Union, the Postal, and the other news agencies now use in their commercial services.

Mr. MCKINLEY. Is not that reliable?

Mr. HALL. Yes, sir.

Mr. MCKINLEY. There is no objection to their taking it that way?

Mr. HALL. Not at all; we encourage that; we advise it. I hope I have made it clear that the information that is sent out over the wires by the commercial companies—the Western Union and the other telegraph companies, and various associations—is furnished to them by the Bureau of Markets.

If this \$50,000 increase that is asked for is granted we propose to use it as far as it will go in restoring the offices and the leased wires

west of the Missouri River, as nearly as we can tell now, at Denver, San Francisco, and possibly Fort Worth. It is impossible to say in advance, because, as was said here yesterday, there is a proposal to increase telegraph rates—that is, the rates of charges for the wires leased—so we are in the position of a man who is building a house—he doesn't know until he gets it done how much it is going to cost. It may cost 50 per cent more than he thought it would. We are now conducting a service covering live stock, meats, hides, and I spoke yesterday of wool reports, \$2,000 toward which has been allotted during the present fiscal year from the funds for reports for live stock, meats, and animal by-products.

I would like to show you very quickly, by means of a few pictures something as to the nature of the service we are giving now and call attention to some improvements that have been made since I appeared before you a year ago. This chart [indicating] shows the form of market quotations formerly used by the telegraph companies (the one on the left). The one at the right shows the present form used by the telegraph companies, as recommended by the Bureau of Markets.

The chief point to which I wish to call your attention is the fact that the subscriber to Western Union service now gets about twice as much for his monthly fee as he did before.

Mr. McLAUGHLIN of Michigan. Is the rate the same?

Mr. HALL. The rate is the same, and the quotations are given in very much more definite form than they ever were before. You notice on the old form [indicating], under hog quotations, the first one is "mixed and butchers." "Mixed hogs" is a very general and indefinite term. We had quite a task to persuade the trade to drop it. The commission men were fond of it because it was not definite, and the market reporters, the market papers, had fallen into a rut on that term, and it was only after a great many conferences, a great deal of argument and persuasion, that we succeeded in substituting this definite classification, based on weight and quality of the hogs. We don't quote any mixed hogs now at all. We quote eight grades of hogs, running from heavyweight, 250 pounds and up, down to stock pigs, 130 pounds and down, and under each of those the grades are definitely stated, as "medium," "good," and "choice." That is under heavy weight hogs. Under the lightweights the grades run from "common" up to "choice." The old style of market reporting—and in many cases the present style—used by market papers is something like this: "Good to choice hogs, so much; fair to good hogs, so much." Well, we did away with that entirely and substituted the names of the grades which are actually included in the quotation. Now, "medium to good" might mean either medium and good, or it might mean the "twilight zone" in between medium and good, or it might mean almost anything and never did mean anything very definite. The Bureau of Markets classifications have now been adopted universally at live-stock markets all over the country, and many of the market papers have been obliged to adopt them because the Western Union and the Postal Telegraph, the Associated and the United Press Associations are both using them.

The CHAIRMAN. What grades of cattle have you there?

Mr. HALL. Choice and prime is the first grade.

The CHAIRMAN. That has reference to steers, has it not?

Mr. HALL. Yes, sir. First is beef steers, and under beef steers, first medium and heavy weight, meaning 1,100 pounds and up. Under that, choice, prime, medium good, and common. Then light-weight steers, 1,100 pounds and down, good and choice, common and medium.

The CHAIRMAN. Does that mean killers?

Mr. HALL. Yes, sir. Then the butcher cattle, including heifers, cows, and bulls of the different grades, cutters and canners, including both cows, heifers, and canner steers. Then veal calves, feeder steers, stocker steers, stocker cows, heifers, stocker calves, and western range cattle.

One of the most important features of this sort of thing is the adoption of the same standard at different markets. To illustrate what I mean by that, in the Chicago market a prime steer is the very best fat steer that you will find in this country. At Kansas City it is practically as high a grade of steer as can be found, but when you go to Fort Worth, for instance, you will find that what they used to quote as a prime steer down there would not grade higher than medium, perhaps, or good at Chicago; and yet those quotations were going out as quotations on prime cattle, when they were two or three grades below prime. Now, by having a force of men at these different markets, all of whom have been trained to use the same system of reporting, it means that we can compare quotations for Chicago with those for Fort Worth. Now, that means not merely the farmer getting better information, but it means that the Government has a better check on the packers. It means that when we compare prices of cattle with the prices of meat, we know what we are comparing; we are not taking a lot of averages and guessing at it, but we know exactly what grade the given price represents. Formerly, the telegraph companies sent out at 7 o'clock in the morning a quotation on hogs and cattle for that day. The first wire from Chicago at 7 o'clock in the morning would say, for example, "Hogs 10 higher." The hog market usually did not open until 8 or 9 o'clock and never as early as 7 in the morning; and the fact is that that quotation sometimes was sent out before the man who issued it had really gotten out of bed. Our investigation disclosed that one of the men who was responsible for sending out this quotation at 7 o'clock in the morning often used to take the telephone from the side of his bed and telephone it to the offices of the news agencies that were paying so much a month to send it out.

Mr. ANDERSON. Whom did he represent, or where did he get his figures?

Mr. HALL. He was employed by three or four different people; partly by the local market papers at Chicago, partly by the packers, and partly by the board of trade. And he has said very frankly that that estimate was just instinctive, just an intuitive guess. He would call up the railroads and find out how many hogs were coming into the market that day; then, by knowing how many were there a week ago and a year ago, and by knowing which road they were coming off from this morning, he would say—if the run was large from Iowa, they would be high-grade hogs; or if they were largely from the South, they would not be such high grade; and

knowing the trade in the East, the demand for pork cuts, etc., he would sort of average this all up in his mind and guess that hogs were going to be "10 lower to-day." He would send that out at 7 o'clock in the morning, when no one had any business to know what hog prices were going to be. We immediately cut that feature out of the report. There was a great deal of protest against it, both by packers and commission men, and by farmers who had been in the habit of getting it and still wanted to get that 7 o'clock quotation, although it was not doing them a bit of good. We had to wean them away from it.

Mr. MCKINLEY. Did you find that that quotation was not borne out by the facts?

Mr. HALL. Yes, sir; we found that it was about as reliable as the Rev. Mr. Hicks's weather report used to be in the old days.

The CHAIRMAN. When does your report go out?

Mr. HALL. Our first report of prices goes out about 9.15 in the morning from Chicago, Mr. Chairman; and it doesn't go out then unless hogs have actually been sold at that time. We don't get out a quotation until some hogs have been sold or until at least bids have been made.

The CHAIRMAN. Your 9.15 report is pretty much of a guess?

Mr. HALL. No, sir; it is made up from the first bids and sales. It is a preliminary report, of course. Then we send out others as the market develops, at about 10, 10.30, and 11, and then at the closing of the market, usually soon after noon.

The CHAIRMAN. 9.15 is the first one?

Mr. HALL. If I am not mistaken, the first wire on hog prices now goes at 8.30. The schedule has been changed more or less from time to time according to the market hours, the run of hogs, and so forth. We have to try to adapt it right along to the needs of the trade, but the custom is to get out the first hog-market wire at 8.30, giving any bids or sales made at that time. Then there is a later one, a flash wire at 9.15. At that time usually a sufficient number of sales have been made to establish an opening market.

The CHAIRMAN. I understood your representative in Chicago to say that practically nothing went out before 11 o'clock.

Mr. HALL. He was speaking of cattle, I think, Mr. Chairman.

The CHAIRMAN. Of hogs, too.

Mr. HALL. We are nearly always able to get sales on hogs by 9 or 9.15.

The CHAIRMAN. That would reach the country about 10 or 11 o'clock, would it not?

Mr. HALL. Yes, sir; or as long as it takes to get it over the wires, depending on the distance from Chicago. You see at Chicago the hog trade is usually opened by the speculators, not the packers. Often when there are 30,000 hogs in Chicago the speculators will get out before 9 o'clock and buy 15,000 or 20,000. So we have to quote it as a speculator market. If the packers get in and bid early, we say that in the message to the trade, and the farmers in the country will know, as near as we can tell them in a few words, what the bulk of the market is.

The CHAIRMAN. As a practical, experienced cattleman, of what value is this 11 o'clock report to the packer, for instance, in the

country? The packer must place his order for hogs or stock as early as 8 o'clock in the morning if he is going to get any stock at all?

Mr. HALL. Do I understand you are speaking of the packers' country-buying operations?

The CHAIRMAN. He places his order at 8 o'clock in the morning when the cattle and hogs go on the market. Practically everything is sold between 8 and 10 o'clock. Now, the packers' complaint is that they get your reports at 11 o'clock while they have to place their orders at 8 o'clock in the morning—three or four hours before this department report regarding the day's market reaches them—so it is of no value to them.

Mr. HALL. I see what you mean. They get all the information we have, just as fast as we are able to release it.

The CHAIRMAN. I am not criticising what you do; I am simply trying to find out how we can improve the situation. They get it after they buy. How can that be overcome?

Mr. HALL. The only way it could be overcome, Mr. Chairman, would be to have a faster telegraph service.

The CHAIRMAN. The wire can not take it before you deliver it, and, as your representative said, he delivers it about 11 o'clock in the morning.

Mr. HALL. You are speaking of the cattle market now.

The CHAIRMAN. Yes; of cattle and hogs.

Mr. HALL. We begin to give quotations from the hog market at half-past 8 or 9 o'clock in the morning. It is difficult to report the cattle market until 11 or 12, because the packers don't get out to buy, that is a condition that can not be overcome in any way that I know of.

The CHAIRMAN. My understanding is that you are trying to be absolutely safe. In order to play safe, it is necessary for you to ascertain the market and the sales before reporting.

Mr. HALL. Yes, sir.

The CHAIRMAN. You look over the tickets to know exactly what the sales are—who made them, who sold, and at what price. Your Chicago representative tells me that it is impossible to get those data until about 10 or 11 o'clock, so of course you can not send the reports before that.

Mr. HALL. But, Mr. Chairman, he is getting it as early as he got it before we started our service.

The CHAIRMAN. The packer gets his report, not from you but from other sources, at 8 o'clock in the morning. He acts upon the other reports and not upon your report.

Mr. McKINLEY. What does he get? Does he get that report that the man gives at the bedside; is that the 8 o'clock report?

The CHAIRMAN. Commission men or the Stock Journal send out their reports about 8 o'clock.

Mr. HALL. That is because they are in a position to guess at it.

The CHAIRMAN. After all, that is the report that they buy on, is it not? They get your report at 11 o'clock which is more accurate, I take it, but, after all, it comes along after all the purchases have been made.

Mr. HALL. That varies with different packers. The packers you speak of in Iowa, I think, Mr. Chairman, buy in various ways,

and I am inclined to think they have overemphasized the inconvenience which they have sustained as a result of the change in these reports. They have made various complaints to us, not entirely on the score of delay, but also that we quote the market too high; we do quote it higher than it was formerly quoted by the men that I spoke of a while ago.

The CHAIRMAN. The question is should there be a change in the policy?

Mr. HALL. I think the policy should be, if we had authority to do it, to put a stop to all those estimates.

The CHAIRMAN. They wouldn't have anything, then.

Mr. HALL. I failed to say a few minutes ago that we begin to send out reports of the live-stock receipts at the market, the estimated receipts, at 6 o'clock in the morning.

The CHAIRMAN. You are familiar with the stock business in the country—with what the buyer does?

Mr. HALL. Yes, sir.

The CHAIRMAN. You know, then, that in the morning between 8 and 9 o'clock he receives this report and buys upon the report for the day. He doesn't take your report of yesterday; he takes the morning report that comes along about 9 o'clock in the morning, and buys on that. About noon he gets your report.

Mr. McLAUGHLIN of Michigan. Doesn't he know that that is only a guess?

Mr. HALL. Yes, sir.

The CHAIRMAN. It is the only thing he has.

Mr. McLAUGHLIN of Michigan. It can't be given earlier than that accurately, can it?

The CHAIRMAN. They seem to be giving it about as accurately as anybody.

Mr. McLAUGHLIN of Michigan. Mr. Hall says his report goes out just as soon as there have been actual sales.

Mr. HALL. I would say, gentlemen, that we held a great many conferences, as I said a while ago, on this subject. I went to Des Moines and conferred with Corn Belt Meat Producers' Association officials, conferred with the American National Live Stock officials, and others as to whether it was wise or unwise to discontinue this morning service. The sentiment was unanimous that it was wise to discontinue it, and we acted upon their recommendations.

The CHAIRMAN. After all, your report is simply a verification and serves as a matter of comparison between this and the one on which they had been buying.

Mr. HALL. As to our reports on the meat trade, never before this service started was any information regularly available as to the prices of fresh meats in the East, which are the barometers, so to speak, of the meat trade of this country. Our reports cover New York, Philadelphia, Boston, Pittsburgh, and Washington; and although this was started three years ago we have been able to improve it in many ways, speed it up, so that we have brought about much closer relations between prices of live stock in the West and meats in the East, and have made it possible much more quickly than ever before to check up any discrepancies that appeared.

The CHAIRMAN. Have you any suggestions to make on live stock?

Mr. HALL. No, sir; except that as rapidly as Congress feels warranted in spending the funds for it, it seems to me it should be expanded and extended.

The CHAIRMAN. Would you suggest a change to furnishing information earlier in the morning?

Mr. HALL. No; I think I stated—

The CHAIRMAN (interposing). You expect to adhere to the policy you have adopted?

Mr. HALL. Yes, sir. It is very evident that it would be unwise to give out this guess.

The CHAIRMAN. You admit that it is of little value to get out a report after the cattle or live stock has been bought?

Mr. HALL. I must insist, Mr. Chairman, that they do get a good deal of information that is valuable before that.

The CHAIRMAN. They get it late.

Mr. HALL. No, sir; they get information showing estimated receipts of cattle, sheep, and hogs at Chicago as early as 7 o'clock in the morning. Our office gives that out at 6 o'clock, and any packer at Cedar Rapids or Ottumwa will get it by 7 certainly. There is laid on my desk every morning, often before I arrive, a summary showing the estimated receipts at all of the western markets for the current morning.

The CHAIRMAN. Receipts and prices are two different things. Very often prices are higher with big receipts than with small ones.

Mr. HALL. Prices are not made until the stuff is sold.

Mr. McLAUGHLIN of Michigan. The question is whether it is advisable to send out guesses or wait until there are actual sales.

Mr. HALL. We say it is not, and we don't intend to do it until some one insists on it.

The CHAIRMAN. Under the practice, it is of little value.

Mr. HALL. It is up to him whether he is going to begin buying before 11 o'clock on a guess or whether he is going to wait until he gets the report of actual sales.

The CHAIRMAN. You know very well that a buyer can not wait until 12 o'clock before he gets prices for hogs. Buying begins at 8 o'clock or even earlier.

They all understand in my section of the country that at 9 o'clock they can have the quotations on hogs, and they sell over the telephone. Most of the selling is done before noon. Your report comes along about noon, based upon facts, and the other is, I will admit, and must necessarily be, more of a guess. The question is whether the policy of the department shall be to continue the late reports.

Mr. McKINLEY. Didn't I understand you, Mr. Hall, to say that you sent out a hog-sale report at 8.30 in the morning and another at 9.15?

Mr. HALL. Yes, sir; provided either bids or sales have been consummated at that time. I will say we are doing the best we can to get it as rapidly as it is available.

The CHAIRMAN. Your representative told me he was not sending out anything before 11 o'clock.

Mr. HALL. I think you misunderstood him.

The CHAIRMAN. No; I asked him two or three times, and I called his attention to the complaints made by the packers.

Mr. HALL. That is true as to cattle.

The CHAIRMAN. I have reference to hogs.

Mr. HALL. I would be glad to file copies of our messages showing exactly the time that they went out to-day, the 13th of January. You will find they begin going about 8.30 or 9 o'clock, if I am not mistaken. It changes from time to time more or less, according to the way the hogs are coming in on the railroads. But I would be glad to give you the actual time for to-day if that will clear the matter up.

NOTE.—The Bureau of Markets' opening message on hog prices is filed at Chicago at or about 8.30 a. m. The actual time of receipt of this message via leased wire at Washington, January 13, 1920, was 8.41 a. m., central time.

Another point that I called to the attention of the committee in previous presentations of this matter is the fact that our reports cover about 70 or 72 stockyards, whereas up to two or three years ago practically all of the information that was available to any stockman or any commission man was the estimated receipts for five or six or not more than seven or eight markets.

Mr. ANDERSON. Of what value are the reports from a large proportion of the stockyards in determining what the prices are? I suppose that 90 per cent of the business is done in about 10 yards—perhaps less.

Mr. HALL. That is probably approximately correct, Mr. Anderson. And it is only the balance, the small percentage that one gentleman spoke of this morning—it is the 5 per cent above or below the demand for the day, often, that affects the price. Now, I don't mean to say that we are getting quotations on 70 markets daily. That comes out in our monthly report which is valuable only, of course, in showing the general trend, but our daily report has extended the number of larger markets, which are shown on the bulletin boards each morning.

Mr. ANDERSON. To get this down to a concrete point, tell us from how many markets you are getting now daily reports?

Mr. HALL. Twelve markets, if I am not mistaken.

Mr. ANDERSON. I would imagine that would be about right. From how many do you get weekly reports, or do you get any weekly reports?

Mr. HALL. No, sir; none in addition to those. The others I spoke of are monthly reports.

Mr. ANDERSON. I gathered from what you said in the first place that you were getting a daily report from some 70 markets.

Mr. HALL. I am afraid I gave a wrong impression.

Mr. ANDERSON. It struck me that that was entirely unnecessary.

Mr. HALL. I am afraid I gave that impression. I tried to correct it a moment later. But the monthly report does show a great deal more fully and accurately the general supply of cattle, hogs, and sheep in the United States than anything of the kind we ever had before.

Mr. ANDERSON. I should say that, for statistical and historical purposes, of course you ought to have all the markets in the country.

Mr. HALL. It is very eagerly watched for at the first of each month by thousands of members of the trade and the stockmen and farmers.

Now, here are a few pictures that show the way in which we have been studying the classification of live stock in connection with our

market reports. There are those who say that live stock can not be classified; that no two animals are alike, that every deal is a horse trade between the buyer and the seller, and that we can't hope for any more uniform standards than we have now. We do not claim that cattle can be standardized like cotton or wheat, because you can't take a sample of a load of cattle and take them to the office or the laboratory or the committee room and pass on them; and it is a question of dealing with them at the moment, not when it is water that has gone over the wheel. But I have placed this chart before you to show the possibilities of great improvement in reporting the market, simply as a matter of market quotations. We have adopted these five grades of beef steers, prime, choice, good, medium, and common, and have given our market reporters instructions to follow as nearly as possible that standard. We have done likewise with other classes of stock. Here are the feeder steers, the kind that the farmer buys to put into his feed lots as thin cattle and fatten them for the market. Here are selected, choice, good, medium, and common [indicating].

Mr. ANDERSON. Before you get away from beef steers, may I ask you if there is any definite relation between your beef steers and your meat grades?

Mr. HALL. Just one difference. There is one more grade of live cattle than there is of dressed beef. I will show you the grades of meat in just a moment.

Mr. ANDERSON. Is there any relation between the two?

Mr. HALL. Do you mean as to the prices?

Mr. ANDERSON. Yes.

Mr. HALL. Yes; there is a general relation. We don't know as much about it yet as we want to. The service hasn't been running long enough to go into that, but very often the beef from a medium steer, by the time it gets over the retailer's block is going by a very different name; and very often, I have no doubt, before it gets out of the packer's branch house it is good or choice steer by name. It is still a horse trade, even in the meat business as well as in the live-stock business. It will take a long time to develop it beyond the stage of a horse trade, and it is a matter of education, but we claim that rapid and substantial progress can be made in that direction. Here [indicating] is a class of cattle on which perhaps as much education is needed as any, the class that the farmer invests his money in when he starts to fill his feed lots with cattle.

Many farmers will make the mistake of paying a fancy price because the cattle are fancy—all red or all roan or all black or all white-faced—and do not consider the lessons of market history, which show that the prices for the highest grade of stock six months hence or three months hence, when they come on the market, are always at a discount. That is particularly true of farmers that feed cattle for the spring markets. It often happens that it would pay better in October or November to buy good or medium steers to put into the feed lots than to pay the price for choice or selected grades, because history shows that the margin between prime and good beef steers in the spring is less than it is at any other time in the year. So the farmer that is feeding cattle to make money, and not merely for the pride and satisfaction there is in having a nice load of cattle in his yard, will usually put in the cheaper grades of

cattle when he is feeding for the spring market; on the contrary the farmers feeding for the September market or Christmas market can not afford to buy common cattle, common feeders, because when the farmer comes to the market in the fall, when the grass cattle are all coming in off the range, he will find that he has a lot of competition for common cattle and it is to his advantage to have something choice or fancy.

Here are the grades of hogs [indicating]. Medium weight hogs have been chosen for these pictures, showing the good, choice, medium, and common grades, and I think that even at the distance at which you are sitting you can see quite a difference in the quality between the choice hogs and the common. At the best, a picture doesn't show the quality of an animal as fully as we would like, but it helps. Here are market grades of fat lambs, choice, medium, and cull. We haven't been able to include all of the grades because we didn't have satisfactory pictures of the good and the common, but this shows you the extreme range between a choice lamb and a cull.

Then you were asking about the grades of meat. I am sorry that I haven't a good picture of the dressed carcasses, but here are some of the wholesale cuts which will illustrate the point—wholesale cuts of beef [indicating]. The four cuts on the left are ribs—choice, good, medium, and common. The next row are the other end of the same cuts, taken at the shoulder end of the cuts—choice, good, medium, and common. This is the loin of beef [indicating], of the four grades—choice, good, medium, and common. Pictures of meat, like pictures of cattle, and even more so, usually fail to show the differences in quality, color, and texture and all that sort of thing, but you can see from the difference in shape there that it is not impossible by any means to arrive at a fairly satisfactory standard for either live stock or meats.

In connection with these pictures, although it doesn't relate to the telegraphic market information service, I would just like to take the liberty of placing this before you by way of supplementing what Mr. Harrell said yesterday about the trade in pure-bred live stock [indicating]. Our specialist in the marketing of pure-bred live stock, Mr. Burk, has at great pains and effort made a survey showing the location of the pure-bred live stock of the different breeds in the United States. The dots which give these maps their color, each one represents the location of a breeder who within the past year has registered live stock of the particular breed. The one at the left represents Hereford cattle; the one in the center, Jersey cattle; and the one at the right, Poland-China hogs. And you can see at a glance that whereas the pure-bred Hereford cattle are very largely concentrated in the central part of the United States, Jersey cattle are bred very largely in the northeast, developing extensively, however, in certain other centers. Texas stands out surprisingly here, and the little districts up there in Oregon and Washington. That happens to be Jersey cattle. A map showing the location of Holstein cattle would show an entirely different complexion.

I doubt whether it will be of any special service to go further into detail here as to the use of the \$50,000 that we are asking for, excepting to say that the offices we propose to establish at Denver and San Francisco—and we hope at Fort Worth—will render the same service as nearly as possible as is rendered by those now in operation at

Chicago, Kansas City, Omaha, St. Louis, and St. Paul. And the office at San Francisco, in addition to reporting the live-stock market in that section, would serve to report the meat trade of San Francisco.

In closing, I want to say just a word about the effect of this service on the improvement of the live stock and meat situation in the United States.

I have called attention to this point before this committee in previous years, and I have shown you a chart similar to this one in previous years [indicating]. It is intended to represent the live-stock situation in the United States at this time. The upper line shows the population, which is steadily increasing; the dotted line shows the swine supply, the number of hogs in the United States, which you will see was at a standstill practically from 1890 to 1910, and as a matter of fact it was at a standstill in 1914, when the beginning of the war caused a rapid increase in the production of hogs. The next line, showing the numbers of cattle, you notice followed the same direction as the increase in population up to 1900, since when the cattle supply of the country has been practically at a standstill. There are just about as many now as we had in 1900, which is a pretty strong indication as to why beef is high.

The sheep fairly kept up with the population from 1870 to 1900, with some ups and downs, but since 1900 you notice we have declined from over 60,000,000 sheep to only about 50,000,000, which helps to explain why mutton and lamb are high, as well as wool.

In other words, to sum it all up, we have been practically standing still in the production of meat in the United States for 20 years, excepting hogs, which since 1914 have shown considerable improvement, and yet the discrepancy between the demand represented by population and the supply represented by the number of meat animals, is very striking. It seems to us in the Bureau of Markets, after studying the matter for five or six years, that the principal remedy that is needed to close up that discrepancy—that gap between the curves—is more information and a real supervision. We are not here to discuss the question of supervision, because we are not asking funds for that. That comes under other legislation, but we think that no matter what supervision may be adopted, current daily market information is absolutely essential and fundamental to the efficient conduct of any kind of supervision. We think it is possible for an office located at Chicago and equipped with a corps of experts who know every department of the packing business and of stock-yards operations, to practically conduct a packing house on paper in such a way that it will be possible to determine on any day just what the situation is, just what the discrepancy in prices is, if any, between the price of cattle and the price of hides or tallow, for example; in other words, to operate as a constant check on the packing business. And I believe that if Congress sees fit to restore this service to the point at which we had it developed before the 1st of July, or as nearly that as possible, that it will be money well expended.

If there are any questions, I shall be very glad to answer them.

Mr. McLAUGHLIN of Michigan. Under this item data are collected as to the kind and amount of meat and some other food products in cold storage. Have you had anything to do with that?

Mr. HALL. Yes, sir; our division has cooperated with the cold storage section of the bureau in determining the classification of products to be used, but the work actually is conducted by the cold storage branch of the bureau. If I am not mistaken, that comes under the general funds for investigation and demonstration. We are asking for no increase in that this year.

The CHAIRMAN. Is that all on this item?

Mr. HALL. That is all, unless there is some other question. I thank you.

The CHAIRMAN. We are very grateful to you, sir.

STATEMENT OF MR. GEORGE LIVINGSTON, ACTING CHIEF OF BUREAU OF MARKETS, DEPARTMENT OF AGRICULTURE—Continued.

The CHAIRMAN. The next item is No. 84, page 249:

For collecting and distributing, by telegraph, mail, and otherwise, timely information on the supply, demand, commercial movement, disposition, quality, and market prices of dairy and poultry products, \$69,780.

Mr. LIVINGSTON. Mr. Chairman, the information collected and disseminated under this item is obtained in substantially the same way as that for the news services on fruits and vegetables and for meats and livestock, which have already been described. All of these news services are conducted in substantially the same manner.

The CHAIRMAN. I believe there was some discussion about this last year on the floor.

Mr. LIVINGSTON. I don't recall it.

The CHAIRMAN. There was some controversy by Mr. Moore.

Mr. LIVINGSTON. I think that was over the inspection service.

The CHAIRMAN. That is not under this item?

Mr. LIVINGSTON. No; it is under a later item, Mr. Chairman, item 88.

The CHAIRMAN. This service is practically of the same character as that already discussed under the other items?

Mr. LIVINGSTON. Yes; the same type of service that has been explained to the committees under items 81 and 83.

The CHAIRMAN. You might state where the principal offices are.

Mr. LIVINGSTON. New York, Boston, Philadelphia.

The CHAIRMAN. The larger cities?

Mr. LIVINGSTON. Yes, sir.

The CHAIRMAN. How many branches have you?

Mr. LIVINGSTON. Seven altogether.

The next is item 85:

For collecting and distributing, by telegraph, mail, and otherwise, timely information on the supply, demand, commercial movement, location, disposition, quality, and market prices of grain, hay, feeds, and seeds, \$44,600.

In this item no increases are requested. Information is collected and distributed here in substantially the same manner that has been heretofore described.

The CHAIRMAN. Could not two or three of these items be brought under one head? I think we consolidated one or two last year.

Mr. LIVINGSTON. It would be difficult to administer if that were done, for the reason that the organization which puts into effect

item 85 is an entirely different organization, so far as administration is concerned, from the group of men who put into operation item 84. One of these items relates to dairy products, the others relate to fruits and vegetables, live stock and meats, etc., and we must have in the bureau a separate and distinct organization to handle those commodities. The bureau is organized along divisional lines and it would make some additional bookkeeping for us to keep those funds straight if it were all lumped into one item. We should prefer to let it stand as it is.

Mr. McLAUGHLIN of Michigan. That is one fault, each time any little piece of work—little or big—is authorized, there is a separate organization, with a number of high-priced men in it. It would seem as though they might be put together and the work done by one organization and that money could be saved.

Mr. LIVINGSTON. I don't mean to convey the impression that it means any more overhead expense. We should have to have the same men to handle it whether it appeared in one item or in two. The only difference is that item 84 is administered by our dairy marketing division through our dairy experts; whereas item 85 is administered by the division called grain, hay, and feed marketing, and is handled by an entirely different group of men.

Mr. McLAUGHLIN of Michigan. Do you have to have an expert in dairying and an expert on poultry in order to report the supply and demand for those products?

Mr. LIVINGSTON. No; those are handled together, because they are commodities which are handled in that way.

Mr. McLAUGHLIN of Michigan. Do you have to have an expert in dairying in order to report the supply and demand for dairy products?

Mr. LIVINGSTON. That is a relative term, sir. The people who handle the dairy work of the bureau are expert dairymen; yes, sir. We should not attempt to handle it unless we did have men who knew the dairy industry and the dairy business. Likewise the men who handle the market news service on fruits and vegetables must, above everything else, know the fruit and vegetable industry. The man who knows the fruit and vegetable industry does not necessarily—quite likely does not—know the marketing machinery necessary and in use in marketing dairy and poultry products. To combine these items would not change the organization a bit. It would be a matter of bookkeeping only. We would require the same number of men, the same type of men, and pay them substantially the same salaries, whether these items were all grouped into one or whether they were left separate as they appear in the estimates. I may say that we will be very glad to arrange our organization and our bookkeeping system to meet the desires of the committee in that respect. It makes no material or substantial difference to us whether those items are grouped, other than that grouping would complicate our bookkeeping. It would make no difference in the number of men employed or the character of work done.

The CHAIRMAN. We will take up item 86.

Mr. LIVINGSTON. No 86 reads as follows:

To make investigations relating to the transportation, storage, preparation, marketing, manufacture, and distribution of agricultural food products, in-

cluding the extent, manner, and methods of any manipulation of the markets or control of the visible supply of such food products, or any of them, by any individuals, groups, associations, combinations, or corporations, \$45,620.

The work under that item has been carried on in cooperation with the Federal Trade Commission, as explained to the committee last year. We have now in the hands of the Trade Commission four reports and are completing the fifth.

Mr. McLAUGHLIN of Michigan. I see under 86 you have investigations relating to transportation, storage, preparation, marketing, manufacturing, and distribution.

Mr. LIVINGSTON. Yes, sir. You may remember that the appropriation of \$250,000 given the Federal Trade Commission contained substantially the same language. By direction of the President the work of the Federal Trade Commission and the work of the Department of Agriculture under this item have been carried on jointly and cooperatively. We have taken up certain phases of the work, while the Federal Trade Commission has taken up other phases, and the report is to be published jointly as a joint contribution. Part of the report is now being printed and part of the report has been printed.

The CHAIRMAN. Did you cooperate with the Federal Trade Commission in the investigation?

Mr. LIVINGSTON. Yes, sir; our part in the investigation, Mr. Chairman, with reference to the packers, was to look into the cost of marketing from the producer to the packing house, to the stock-yards; and then into the retail distribution of the meats. The Federal Trade Commission took up investigations in the central markets and investigation of the packers as such; the Department of Agriculture did not engage in that phase of the investigation.

The CHAIRMAN. Does the department take part credit for that report?

Mr. LIVINGSTON. No; the Bureau of Markets does not take credit for that report; we will take credit in part, however, for the report which is coming out soon, which relates to the cost from the producer or the shipping point to the terminal market, and also the investigation in which we are now engaged as to the cost of distributing meat from the local distributing houses to the consumer.

The CHAIRMAN. I had reference to the report made by the Federal Trade Commission—the report on the millers, packers, and tanners, for instance.

Mr. LIVINGSTON. No, sir.

The CHAIRMAN. You cooperated with them?

Mr. LIVINGSTON. We cooperated in doing a certain part of that work.

The CHAIRMAN. And you furnished them with certain data?

Mr. LIVINGSTON. Yes; we gave them all the information we had, but we did not actually enter into the investigation of the central markets; the Trade Commission took that over themselves. Our phase of the work was concerned with the cost of marketing up to the central market, and from the central market to the consumer. Reports regarding that work are now in course of preparation, and

some volumes are in the printer's hands. Page proof has recently been read upon part of them.

The CHAIRMAN. You covered certain parts of the work that was done?

Mr. LIVINGSTON. Yes; and in the grain investigation, the grain phase of the work, the Bureau of Markets cooperated with the Federal Trade Commission in studying the country-elevator situation and the terminal-elevator situation as well.

Mr. McLAUGHLIN of Michigan. Will you explain why the Bureau of Markets, which has to do with marketing, has anything to do with the preparation of food and the manufacture of food products?

Mr. LIVINGSTON. It is very difficult to distinguish between preparation for marketing and the marketing itself. It is just as hard to draw a line between the preparation for marketing and marketing, as it is to tell, for instance, where daylight stops and darkness begins, because the preparation for marketing is essentially a part of the marketing.

Mr. McLAUGHLIN of Michigan. But it is the preparation of food.

Mr. LIVINGSTON. The preparation for marketing.

Mr. McLAUGHLIN of Michigan. It is a process of manufacturing.

Mr. LIVINGSTON. We did not enter into the manufacturing phases of it because the Federal Trade Commission took up that phase of it—the milling of wheat and the packing-house operations. The Bureau of Markets did not engage in that phase of the investigation at all. You will recall that last year this item included authority to investigate and report upon the cost of production. The committee last year removed that authority from the item.

Mr. McLAUGHLIN of Michigan. Then you have had nothing to do with this question of investigating the manufacture?

Mr. LIVINGSTON. No, sir.

Mr. McLAUGHLIN of Michigan. And you don't intend hereafter to do that?

Mr. LIVINGSTON. No, sir.

Mr. McLAUGHLIN of Michigan. Then that word could go out?

Mr. LIVINGSTON. That word could go out, so far as we are concerned; yes, sir. This item, as I say, covers a very broad field and we have divided up the work with the Federal Trade Commission.

Mr. McLAUGHLIN of Michigan. How far do you go in this matter of investigating the preparation of food products?

Mr. LIVINGSTON. Only so far as it concerns marketing. For instance, in the preparation of fruits and vegetables preparation for market is a very important phase of the work which Mr. Sherman will discuss a little later in connection with standardization and grading. As a general statement, I will say that our investigations under this item have been confined strictly to marketing questions.

Mr. JACOWAY. In a way, this means the standard container and an investigation of the soundness of fruits and vegetables?

Mr. LIVINGSTON. Yes; the term "preparation for marketing" is a relative term, and by most people would be considered part of the marketing, because it is a very important part of marketing, when considered as meaning standardization, packing, and things of that sort.

Mr. McLAUGHLIN of Michigan. That means preparation for market, then?

Mr. LIVINGSTON. Yes.

Mr. McLAUGHLIN of Michigan. And that word "preparation" as used there doesn't mean in any sense the making or the manufacturing of it?

Mr. LIVINGSTON. No; it is grading, classifying, packing, and methods of shipping—things of that sort.

Mr. McLAUGHLIN of Michigan. "Preparation" is a pretty big word if you apply it only to marketing.

Mr. LIVINGSTON. Preparation for market, as we consider it, is an essential phase of marketing. It relates primarily to grading, packages, methods of shipping, and activities of that kind.

Mr. JACOWAY. In shipping peaches or strawberries, do you instruct the trade as to the amount that the package will hold, the physical condition in which the strawberry or peach must be before it goes into the package, how much room it will take up in a car, and how many packages you can put into a car, and things of that kind? That is what you mean by the word "preparation," isn't it?

Mr. LIVINGSTON. That is it. The preparation of a commodity has a great deal to do with the condition in which it arrives at the market and the price received.

Mr. JACOWAY. On it depends the whole question of whether you are going to sell it or not sell it.

Mr. LIVINGSTON. Very largely. It is a term, Mr. McLaughlin, that is tied up very closely with marketing, and a very broad interpretation of the word "marketing" would include preparation.

Mr. JACOWAY. If you didn't have this preparation, the trade would not buy the commodity, because they would not know what they were buying. Is not that the situation?

Mr. LIVINGSTON. Yes, sir.

Mr. McLAUGHLIN of Michigan. Take the preparation of breakfast food, for instance. "Preparation" there means the entire manufacturing of it, doesn't it?

Mr. LIVINGSTON. That would be a manufacturing process, I should say, Mr. McLaughlin, rather than preparation for marketing.

Mr. McLAUGHLIN of Michigan. This doesn't say "preparation for marketing."

Mr. LIVINGSTON. We have interpreted it that way, "transportation, storage, preparation, marketing." Preparation, preceding marketing, has meant to us preparation for marketing, and we haven't gone outside of the agricultural field, outside of the strictly agricultural field, and I assure you that the bureau will not interpret that term in the broad sense that you have in mind. We would feel restricted if the word were eliminated, because there might be some question as to what the term "marketing" included; but I can assure the committee we will not give that word its very broad interpretation.

Mr. McLAUGHLIN of Michigan. The next item is 87.

Mr. LIVINGSTON. The next is 87:

For collecting and distributing by telegraph, mail, and otherwise, information on the supply, demand, commercial movement, disposition, quality, and market price of peanuts, and their products, \$12,000.

There has been no change in this item. The peanut growers are vitally interested in this service. A delegation came down to see us

recently asking for an extension and an increase in the work. If the committee desires we shall be very glad to have Mr. Sherman explain the work.

Mr. McLAUGHLIN of Michigan. Isn't this inquiry as to peanuts carried on in the same sections of the country where you are collecting data in regard to vegetables and fruits, and so forth?

Mr. LIVINGSTON. Yes, sir.

Mr. McLAUGHLIN of Michigan. Why can't that be done by the same service?

Mr. LIVINGSTON. It is done by the same men, Mr. McLaughlin.

The CHAIRMAN. Why should not this item be merged with some other item?

Mr. LIVINGSTON. If you are going to merge it with anything, I should say merge it with item 81.

Mr. McLAUGHLIN of Michigan. You have a separate organization for that, with an investigator at \$2,400, an assistant at \$2,040, and so forth.

Mr. LIVINGSTON. As I mentioned a while ago, Mr. McLaughlin, it makes no difference in the personnel whatever—the number of men required.

Mr. McLAUGHLIN of Michigan. I should think it would make a difference in the personnel if you have two or three heads to the thing.

Mr. LIVINGSTON. We don't have two or three heads, even though these items appear individually. For instance, Mr. Sherman is in charge of the fruit and vegetable division, and we have included peanuts in that division. We have no other man who deals with those commodities in the same way that Mr. Sherman deals with them. He deals with them in an administrative capacity. We have no specialist in marketing peanuts who has the same administrative authority that Mr. Sherman has. Mr. Sherman will administer that item regardless of whether it appears as an individual item or whether it is included in item 81. We will be very glad to adjust ourselves to the committee's desire. If they desire to put that work in item 81, it will be perfectly satisfactory to us.

The CHAIRMAN. If that is done, the work will be taken care of just the same as though it were carried in an independent item?

Mr. LIVINGSTON. Yes, sir.

The CHAIRMAN. I take it that the people interested in this news service want to know that the work is going to be done, and do not particularly care whether it is carried in two items or one.

Mr. LIVINGSTON. It would mean this: If you put it in that item you would add \$12,000 to the item for this particular service. When I spoke a while ago about grouping items, I referred primarily to commodities which are not related. For instance, we don't want to group fruits and vegetables with hay, because it takes a different type of man to handle those two items; but it so happens that fruits and vegetables and peanuts are handled by the same organization.

Mr. HARRISON. The peanut item was inserted by the Senate, you will recall, Mr. Chairman.

The CHAIRMAN. Yes, I recall; and it was suggested then that it be merged into some other item. At that time they wanted it carried as a separate item, at least for a year. I take it, if you can assure them now that the work will be done, they will be satisfied to have it go into another item.

Mr. LIVINGSTON. We will be very glad to adjust ourselves to the committee's desires.

Mr. McLAUGHLIN of Michigan. You suggest that 87 can be combined with 81 by adding the \$12,000 and the word "peanuts"?

Mr. LIVINGSTON. Yes, sir.

Mr. McLAUGHLIN of Michigan. But your item No. 81 calls for an increase of \$50,000.

Mr. LIVINGSTON. Yes, sir.

Mr. McLAUGHLIN of Michigan. Suppose that increase of \$50,000 should not be allowed by the Congress.

Mr. LIVINGSTON. That would be unfortunate.

Mr. McLAUGHLIN of Michigan. Then the peanuts would be included in there with a total amount less than the total of the two items now. Then what would you do?

Mr. LIVINGSTON. I should like to have you increase the total, Mr. Chairman, to make it equal to the sum of the two items now.

Mr. McLAUGHLIN of Michigan. There may be a majority of the committee who will be economically inclined and will not do it.

Mr. LIVINGSTON. I appreciate that, but I was assuming, in accordance with the chairman's suggestion a while ago, that this service would be carried on during the next fiscal year in the same manner and to the same extent that it has been during the past fiscal year. In order to do that we must have \$12,000.

The CHAIRMAN. I appreciate that, but you also appreciate that it is an unusual thing not to cut some items. If the committee should find it necessary to cut part of the \$50,000, what would become of the peanuts?

Mr. LIVINGSTON. I would suggest to the committee that the first thing to do is to decide on how much money they are going to permit us to have under item 81. After once having decided that question, add to it \$12,000.

The CHAIRMAN. How should that be indicated to the department?

Mr. LIVINGSTON. If you decide, for instance, Mr. Chairman, to give us \$269,000 for item 81, all that is necessary to combine the two items is to add \$12,000 to the \$269,600 for service on peanuts, and you will have it.

The CHAIRMAN. And so specify in the item?

Mr. LIVINGSTON. So specify in the item.

The CHAIRMAN. We do not want to set aside a lump sum by itself.

Mr. HARRISON. If you merely add \$12,000 to item No. 81, we will see that that amount is expended on the peanut market news service.

The CHAIRMAN. It is bad policy. We are drifting into politics every time we set out certain items.

Mr. LIVINGSTON. I appreciate the committee's position.

The CHAIRMAN. We want to treat the country as a whole; we do not want to foster any favorite project or anything of the kind. When we begin to set aside \$10,000 for North Dakota and \$10,000 for South Carolina, we get into politics.

Mr. HARRISON. And it requires additional bookkeeping.

The CHAIRMAN. Yes. We want to take care of the peanuts; we want to make it clear to you that they are to be taken care of. What would it be necessary for the committee to do?

Mr. McLAUGHLIN of Michigan. Last year, for example, you had \$250,000 under 81. Suppose that should be made \$262,000, which

would leave that amount in 81 the same as it was last year, \$250,000, and include the peanut item, \$12,000.

Mr. LIVINGSTON. In other words, what you are trying to decide—

Mr. McLAUGHLIN of Michigan. I am trying to tell you that some of these increases are going to be reduced.

Mr. HARRISON. Mr. McLaughlin, we would not know the purpose of that \$12,000, except in this way—and I think it has been done every year—if the committee will state in its report that this item has been increased by \$12,000 for, in this case, the conduct of a market news service on peanuts, the department would be guided by what the committee says in its report.

The CHAIRMAN. Then we will handle it in that way.

Mr. LIVINGSTON. We should prefer, however, that they add \$12,000 to the \$269,600.

Mr. HARRISON. We would much prefer that.

The CHAIRMAN. That may be done; we are not passing upon those things now.

The next is No. 88.

Mr. LIVINGSTON. The next is 88:

For enabling the Secretary of Agriculture to investigate and certify to shippers and other interested parties the quality and condition of fruits, vegetables, poultry, butter, hay, and other perishable farm products, when received in interstate commerce at such important central markets as the Secretary of Agriculture may from time to time designate, under such rules and regulations as he may prescribe, including payment of such fees as will be reasonable and as nearly as may be to cover the cost for the service rendered: *Provided*, That certificates issued by the authorized agents of the department shall be received in all courts of the United States as prima facie evidence of the truth of the statements therein contained, \$191,700.

If I may, I would like to suggest that hay be taken out of that item and be put in a separate item, for the reason that, while hay is not a perishable commodity, it is included with a lot of commodities which are perishable products.

Mr. McLAUGHLIN of Nebraska. May I ask what is the difference between information that you are getting and disseminating relative to hay in item 88 and in item 85?

Mr. LIVINGSTON. This is strictly an inspection service; whereas the other item relates to market reports on prices, supply and demand, etc. One item is strictly an inspection service and the other is a price service; and while dealing with the same commodity they are entirely different types of work. For instance, the market news service on fruits and vegetables, reports prices, car movements, and things of that sort, while the inspection service deals with the quality and condition of the fruit when it is inspected upon request on arrival at the market. This item provides for the inspection service. Information regarding quality and condition of products is given in the form of a certificate to the party interested, which certificate constitutes prima facie evidence in the United States courts as to the quality and condition of the fruit at the time and place of inspection. It has nothing to do with prices, only dealing with quality and condition.

Mr. McLAUGHLIN of Michigan. How many of those inspectors have you now?

Mr. LIVINGSTON. I will have to get that information.

Mr. JACOWAY. Under the law the certificate of inspection is taken as prima facie evidence in a court of justice?

Mr. LIVINGSTON. Yes, sir.

Mr. JACOWAY. That provision was incorporated in the law some two years ago. Don't you find that of great advantage to the shipper?

Mr. LIVINGSTON. I think it is, sir.

Mr. JACOWAY. In other words, don't it cut off a great deal of dishonest dealing on the part of people who want to act dishonestly, especially with the shipper of perishable products?

Mr. LIVINGSTON. It does. I will call attention to a thing which came to my notice very recently. A car of a certain commodity—I have forgotten what it was, one of the fruits or vegetables—arrived at Galveston for export to Cuba. The shipper back in the country received a telegram from the forwarding agent stating that the car was in bad shape; that it had to be rebagged and sorted, and that it would cost the shipper about \$200. The shipper called for an inspection on the car from one of our men employed under this item 88, and the inspection certificate showed that there were only three bags out of the whole lot that were in any way out of condition. This saved the shipper about \$200. He paid \$2.50 for the inspection service and avoided paying \$200 in resacking and sorting charges. The direct monetary result is not the only thing to be considered, moreover, but the indirect result—which to my mind is more important—is the breaking up of such a practice as that. That forwarding agent is not going to send back very many reports of that kind now that he knows the inspection service is going to be utilized.

Mr. JACOWAY. It has a tendency to eliminate dishonest commission merchants all over the United States?

Mr. LIVINGSTON. Absolutely. I am sure Mr. Sherman, who is dealing with this problem every day, can give you a number of illustrations of that kind.

Mr. HEFLIN. Have you figured out now the amounts annually that you think you would need?

Mr. LIVINGSTON. For the Bureau of Markets; yes, sir, \$3,023,395.

Mr. HEFLIN. Do you think any reduction in that amount would seriously cripple the work?

Mr. LIVINGSTON. It would, in our opinion; yes, sir. In fact, we think the amount ought to be increased.

Mr. McLAUGHLIN of Michigan. I missed the answer to my question as to how many of these inspectors you have and where they are located.

Mr. LIVINGSTON. Mr. McLaughlin, you will notice that we are asking for an increase of \$50,000 in this item, to be expended for two things: First, \$15,000 for inspection on butter, and through a typographical error there was omitted also "and poultry products." In other words, we want to spend \$15,000 on dairy and poultry products and the remaining \$35,000 for hay.

In order that the committee may have a background of what this service is, I am going to ask Mr. Sherman to make a very brief statement regarding the inspection service on fruits and vegetables. The work on butter and poultry products will be substantially the same as

that done with reference to fruits and vegetables. Mr. Sherman will also answer the question about the number of inspectors we have.

The CHAIRMAN. You may proceed, Mr. Sherman.

FURTHER STATEMENT OF MR. WELLS A. SHERMAN, SPECIALIST IN CHARGE OF FRUIT AND VEGETABLE DIVISION, BUREAU OF MARKETS, DEPARTMENT OF AGRICULTURE.

Mr. SHERMAN. The inspection service, as you know, is a definite service offered to the public at a definite price.

Congress has dignified the standing of the certificate that we issue by making it prima facie evidence in court in case the controversy goes to court, as it has in a number of cases. There are certain restrictions which you have placed upon this service, one of which is that the goods must have moved in interstate commerce. I presume that the idea there was to limit the amount of our work, but the practical result is to limit the amount of our collections, because our man in New York City may inspect the first and the third car in a train of potatoes which originated in New Jersey or Pennsylvania, but can not inspect the second car that happens to originate in New York State.

There is another restriction in that we can make these inspections under the language of the bill only in markets designated by the Secretary, and the Secretary, of course, could hardly designate every town on the map where somebody might want an inspection; so around each of the inspection centers there are designated a few points of secondary importance which our men can reach, and if a man goes out from Philadelphia to Allentown or Harrisburg to make an inspection, there is added to the price of the certificate his car fare out and back. So that if a man in Harrisburg wants an inspection, it will cost him \$2.50 plus the carfare from Philadelphia and return. If a man in Philadelphia calls for the inspection, he gets it for \$2.50.

Mr. McLAUGHLIN of Michigan. Is this work growing?

Mr. SHERMAN. It has grown to the point now where we can not hire inspectors enough to do the work, because the railroads have issued orders in some cases to their claim agents not to entertain any claim—that order was issued in Philadelphia—that was not supported by a Government inspector's certificate. That is to say, if a dealer in Philadelphia receives a car of potatoes partly frozen and wants to lodge a claim against the railroad company, the railroad company will not entertain his claim unless he has our inspection certificate, which shows just exactly what proportion of the potatoes are frozen and all other facts as to the condition of the car in which the frozen potatoes are found, by which they can determine pretty accurately whether they are responsible.

The CHAIRMAN. Are fees charged in all cases for the inspections?

Mr. SHERMAN. In all instances. There are no exceptions.

Mr. JACOWAY. At how many places in the United States can these inspections be made?

Mr. SHERMAN. I have a list here. I will have to stop to count them up. There are 29 major points—163 points altogether. On the map the large red dots indicate the points where we have inspectors permanently located.

Mr. JACOWAY. It is possible, then, for the entire shipping public of the United States to get this inspection service if they want it?

Mr. SHERMAN. No, sir; not at all.

Mr. JACOWAY. Shouldn't that be extended to all the people? Don't you consider it very important?

Mr. SHERMAN. We consider it very important work and one of the services which should be extended. It is one of those services which is making for better moral and ethical conditions in the trade. The news service, the inspection service, and the work in grading and standardization, all contribute to the morals and ethics of the industry by bringing about a better understanding between shippers and receivers.

Mr. JACOWAY. It increases production, too, doesn't it?

Mr. SHERMAN. It increases production. We went into that very elaborately this morning with reference to market news items.

Mr. McLAUGHLIN of Michigan. How much money are you collecting from inspections?

Mr. SHERMAN. In the last six months, from the beginning of this fiscal year to the 3d day of January, we had collected \$28,604. That is for the first six months of this fiscal year. Of course, in the preceding fiscal year the work was newer, we had a smaller number of men; it was in the pioneer state and collections for the preceding fiscal year were \$45,000. We are running at the rate now, you see, of over \$57,000 for this year, and that is on a \$2.50 fee per car. So you see a great many of these men are not only busy but are overworked. We have a chart that will show you the number of inspections that were turned down because we could not hire men enough to do the work. We have turned down from July to October only of this year, 967 applications for inspections because we hadn't the men to do the work, or because the men were working 10 or 12 hours a day and there was not enough daylight to cover additional cars. Of course, that doesn't represent the business we might have done, because the receivers who have cars that they want inspected at points that have not been designated have stopped making applications.

Mr. JACOWAY. How many cars would 967 applications include?

Mr. SHERMAN. Each application represents a car lot. That represents the total that you see here [indicating on chart]. There were this many inspections made during these four months. This was the number that was turned down because there were not sufficient inspectors. You will observe that the largest number turned down was in Pittsburgh. Four hundred and eight applications were turned down in Pittsburgh alone because of the peculiar conditions that exist there.

If you want a very definite, specific statement of exactly how the service works at the point where I should say it is most highly appreciated and most completely used both by the trade and the railroads, I would be glad to have Mr. Robb, who has been in Pittsburgh ever since the work started and has just been brought to Washington, give you that information.

Mr. JACOWAY. We had a man in Arkansas who represented a number of sellers of different kinds of perishable products. He picked out a commission merchant in Chicago that he thought was honest and shipped all these carloads of apples, peaches, watermelons, etc..

to him, and every time he got a return on a car something was wrong with it. So he came here to see me about it. I got busy with him through the Department of Justice, and, as a result, the Chicago man had to return over \$4,000 to the shippers there. This service will correct that, not only in cases like that, but in all other similar cases, will it not?

Mr. SHERMAN. It has corrected it in a great many cases, and we have found, Mr. Chairman, that the result has been in certain markets where we have put an inspector that he has had a great deal of business to do for a short time. Cars were shipped in and buyers would turn them down, alleging something was the matter, and he had a great deal of business for a little while. He issued a few certificates which showed up the game, and the unjust rejections ceased and the man has practically worked himself out of a job. But he was performing exactly the same function that a policeman performs in the suppression of violence and disorder in a city.

Mr. HEFLIN. How many of these inspectors have you?

Mr. SHERMAN. Forty-three inspectors are in the field now, and we need at this moment at least 10 more, in order to take care of the business actually offered and the business which the railroads tell us they will demand in the spring. I might say that the Louisville & Nashville road in Cincinnati has served notice that when the strawberry movements starts from the South coming into Cincinnati they are going to demand Government inspection on every car on which they can't get a clean delivery.

Mr. JACOWAY. Isn't it the only protection that the producers have that will enable them to get a fair price for what they ship to the commission merchant in case controversies arise?

Mr. SHERMAN. It is the only protection I know of.

Mr. JACOWAY. It is absolutely the only protection?

Mr. SHERMAN. It is the only protection of which I know.

Mr. JACOWAY. Because if they bring suit they have got to travel thousands of miles and go to a hostile forum in many instances, and wherever this Government certificate comes in under this law, which says that it shall be prima facie evidence in a court of justice, it seems to me that that settles the question almost absolutely, provided your service could be universal in the United States.

The CHAIRMAN. Have you done anything in the way of inspecting hay?

Mr. SHERMAN. Nothing whatever.

The CHAIRMAN. Have you had many applications?

Mr. LIVINGSTON. We haven't had a man to do it, Mr. Haugen. We hope to take that up next year, and for that purpose we are asking an increase of \$35,000 in this item.

Mr. SHERMAN. Mr. Chairman, if this committee should see fit to make the money that we collect from this service a revolving fund, out of which we could hire additional inspectors, we could take care of it. We wouldn't have to ask you to increase this item. This business next year would take care of itself. See what is getting away from us now, 408 applications in Pittsburgh with three men there.

The CHAIRMAN. If we allow this amount, how much will you turn into the Treasury from the fees?

Mr. SHERMAN. About \$58,000 a year, at the rate we are going now. The CHAIRMAN. You will turn in next year not quite half of the amount of the appropriation?

Mr. LIVINGSTON. Mr. Chairman, may I suggest that that is on the inspection fee of \$2.50; and we are considering raising that to a higher figure, which will automatically increase the amount of money that comes in, and therefore the amount which is turned in to the Treasury.

The CHAIRMAN. Are we safe in saying that half of the appropriation will be returned to the Treasury?

Mr. LIVINGSTON. On the item as it stands to-day I should say that would be a fair statement.

The CHAIRMAN. You say you intend to increase the fee?

Mr. LIVINGSTON. We are talking about it now. We have it under consideration.

Mr. McLAUGHLIN of Michigan. Do you have in mind what your increase will be?

Mr. SHERMAN. Probably we will double the fee.

Mr. McLAUGHLIN of Nebraska. It ought to be doubled.

Mr. SHERMAN. It is generally believed that we can double that fee without substantially decreasing the business.

Mr. HEFLIN. If you do double it, in your opinion what will you be able to turn into the Treasury in a year?

Mr. SHERMAN. The opinion of our men in the markets is that the increasing of this fee to \$4 would not materially lessen the number of applications. There is usually so much at stake in the car—practically the smallest amount at stake is a difference of \$25. If there is a claim lodged against the car at all, it is at least \$25 and it is liable to be \$300 or \$400. So I think with the larger fee we should be able to turn in over \$80,000.

The CHAIRMAN. How much do you charge on a small shipment?

Mr. SHERMAN. \$1.50 on half a carload; for over half a car it is \$2.50.

Mr. LEE. Don't your men find, as a rule, that the amount in controversy runs into the hundreds of dollars, instead of being less than \$100?

Mr. SHERMAN. Yes, sir.

Mr. ROBB. I will say that most controversies run from \$50 to \$200. Sometimes, of course, there will be a complete loss of a car. I have known it to go as high as \$1,500 in a car of strawberries.

The CHAIRMAN. What is the charge for the inspection of a car of wheat?

Mr. LIVINGSTON. It varies considerably.

The CHAIRMAN. It seems to me when you get it up to \$5 you are getting inspection fee pretty high. Of course, it requires more investigation to pass upon perishable commodities than it would ordinarily in inspecting a car of wheat.

The thought was that, if there is a controversy, shippers might appeal to the Department of Agriculture and have this question settled?

Mr. SHERMAN. Yes, sir.

The CHAIRMAN. That was the thought we had in mind. I think we all appreciate the value of this service.

Mr. HEFLIN. Who pays for the inspection of the wheat when it arrives at the market?

Mr. LIVINGSTON. The shipper.

Mr. HEFLIN. That is apart from this inspection service that we have been discussing?

Mr. LIVINGSTON. Oh, yes.

Mr. HEFLIN. If your man is called in he must make his charge?

Mr. LIVINGSTON. He makes his charge, yes.

Mr. HEFLIN. When a dispute arises as to the condition?

Mr. LIVINGSTON. Yes, sir.

Mr. JACOWAY. Have you ever had a complaint from anyone as to the fee charged? In other words, don't they gladly pay the fee?

Mr. SHERMAN. Yes; most of the large commercial interests think the fee is ridiculously small, and such inspections as private agencies have made for fees heretofore have always been for at least a \$5 charge.

Mr. HEFLIN. Don't you think, though, that you ought not to put it high and thereby get it out of the reach of the little fellow?

Mr. SHERMAN. No, sir.

Mr. HEFLIN. Five dollars might be high for some.

Mr. SHERMAN. But not when there is \$100 at stake.

The CHAIRMAN. Should you charge a uniform rate?

Mr. SHERMAN. Fruits and vegetables are made uniform, but the labor of making inspections differs on different cars tremendously. You send a man to inspect a car loaded with sacks of potatoes, loaded so high that he can't climb over them, can't get in, and he has got to dig out and get samples from the bottom, potatoes on the lower layer, because often they freeze on the floor, and he has got an enormous amount of physical labor to perform. These men actually work, and that is one of the difficult things about this service, you have got to have the combination of an able-bodied laborer who is willing to get in there and do a lot of dirty, hard work, and a man technically qualified to judge of the condition that he finds.

The CHAIRMAN. It wouldn't require as much labor to inspect a car of hay as it would to inspect a car of potatoes.

Mr. LIVINGSTON. That would depend on circumstances.

The CHAIRMAN. It will have to be left to future consideration.

Mr. LIVINGSTON. The next item is No. 89. Mr. Murph, who will present that item, is unavoidably detained, and I suggest that we pass it over until to-morrow.

The CHAIRMAN. Very well.

AFTERNOON SESSION.

WEDNESDAY, JANUARY 14, 1920.

STATEMENT OF MR. DANIEL S. MURPH, SPECIALIST IN COTTON MARKETING AND WAREHOUSING, BUREAU OF MARKETS, DEPARTMENT OF AGRICULTURE.

Mr. LIVINGSTON. If it is agreeable, Mr. Chairman, we will take up the next item, No. 89, on page 252 of the estimates. That is the item

that we passed over yesterday in the absence of Mr. Murph. This item reads as follows:

For investigating, demonstrating, and promoting the use of standards for the different grades, qualities, and conditions of cotton, and for investigating the ginning, grading, stapling, baling, marketing, compressing, and tare of cotton, etc.

There is no change in the amount.

Mr. McLAUGHLIN of Michigan. You may remember, Mr. Murph, when you were with the committee that I raised some objection to the use of money for operating a mill to test the textile strength of cotton, and so on, insisting, in my feeble way that that is not a marketing proposition at all. What are you doing along that line now?

Mr. MURPH. The tests have covered in the past the various grades of cotton, showing their waste and tensile strength. During the war period we were particularly engaged in connection with the Signal Corps Service of the Army in testing cotton for aeroplane balloon fabric. Up to that time only Egyptian cotton was used, and the specifications called for the use of Egyptian cotton in manufacturing that sort of fabric. As the result of the tests we made, we found that Sea Island and American Egyptian cotton, while probably not quite up to the Egyptian cotton in strength, yet was of such a nature that balloon and aeroplane fabric could be made from these cottons, and the War Department, as a result of that test and investigation that we made, changed the specifications so as to allow the use of these American-grown cottons, which, of course, made available for the purpose much larger quantities of cotton than otherwise would have been available.

Mr. McLAUGHLIN of Michigan. What kind of apparatus and paraphernalia have the Government for that kind of work?

Mr. MURPH. We have a little apparatus for testing here, but the most of the work is done in cooperation with the mills. They are very glad to allow us the use of certain parts of their machinery for making the tests that we make.

Mr. McLAUGHLIN of Michigan. But the Government has a plant of its own, has it not?

Mr. MURPH. We have a little machinery of our own here.

Mr. McLAUGHLIN of Michigan. Where is that?

Mr. MURPH. We use the machinery at Clemson College, South Carolina, and at the Agricultural and Mechanical College at Raleigh, N. C., chiefly for checking up the tests. The machinery that we own here is only tensile strength apparatus and a piece of machinery for moisture test. The most of the work, as I say, is done primarily at the mills, and is checked up at the agricultural and mechanical colleges.

Mr. McLAUGHLIN of Michigan. What use is made of the information gained in that way?

Mr. MURPH. For instance, the information we gained in reference to the airplane fabric was useful in the way that I have indicated just a few moments ago.

With reference to other work, our tests have shown certain facts with reference to the real value of certain grades of cotton, and they are guides upon which people interested have tried to fix in their own minds something of the intrinsic value, as we might say, of

cotton. For instance, if mills find as the result of our tests that cottons of certain grades have certain spinning qualities, which they did not realize thoroughly that it had before, there is a demand created for cotton of that kind, and on the other hand, persons who have cotton to sell and, knowing of its intrinsic value, are able to trade more intelligently as to the real value of the cotton that they hold.

Mr. McLAUGHLIN of Michigan. Have the facts that you have developed in this line of work influenced the fixing of the standards?

Mr. MURPH. You mean did they influence the determination in our minds of what should enter into the standards when the department fixed the standards?

Mr. McLAUGHLIN of Michigan. Yes.

Mr. MURPH. No, sir; I can hardly say that. The standards were fixed some time ago, but these tests relate to cotton of the official standards. We refer to the official standards in making these tests, so that when the information becomes available it is available with reference to cotton of particular standards, which are known. During the past year, just as a further illustration, if you will permit me, the advances of the boll weevil appear to have about wiped out the Sea Island cotton industry. We seem this year to be reduced to possibly not more than 10,000 bales, from 100,000 bales a few years ago. This, as you know, is an extremely valuable sort of cotton, and this cotton is in very great demand for certain kinds of fabric, and effort is being made to develop a cotton which will mature early in that section of the country and which therefore may be planted to some extent in place of the Sea Island cotton, as we have it now. That cotton is known as the Meade cotton. It has a good staple, and we have made a preliminary test of Meade cotton as compared with Sea Island cotton, which we expect to follow by making a little more complete test. After making the tests we have in mind at present on the Meade cotton, we should be able to give some very definite information as to the comparative value of Meade and Sea Island cotton, to indicate whether, as a matter of fact, the Meade cotton can be substituted in use for the Sea Island cotton.

Mr. YOUNG. Some of the manufacturing establishments—in fact, most of them, I assume—must of necessity have this long-staple cotton in certain weaves of goods?

Mr. MURPH. Yes.

Mr. YOUNG. And, if we finally lose out by reason of the boll weevil, we shall have to import that cotton?

Mr. MURPH. We shall have to import that cotton.

Mr. YOUNG. I was going to ask you a question along that line. The growers in the Imperial Valley in California, and some valley in New Mexico or Arizona, I believe, which has an irrigating proposition, propose to raise a long-staple cotton, and I notice their acreage is increasing from year to year. Does that long-staple cotton measure up in quality to anything like the Egyptian cotton?

Mr. MURPH. It is comparable. It has been said that its spinning value is not quite so great as that of the Egyptian. That is, that possibly the Egyptian cotton may be a little more suitable for certain purposes than the American Egyptian cotton. As a matter of fact, there have been times during the past season, however, when the

American Egyptian cotton was selling at a better price on the market than the Egyptian, and this indicates that it is of very high character. The acreage, which last year was around 85,000 acres, it is possible, will be about doubled this year; that is, they are expecting to plant about 175,000 acres.

Mr. YOUNG. Where is that increase—in California or Arizona?

Mr. MURPH. It will be largely in Arizona and will be developed somewhat in California, too. There is a section of territory out there which seems to me especially suitable for this cotton, a section of territory in California in which some short-staple cotton has been grown which seems to be suitable for long-staple cotton; therefore there is no reason why it should not be grown there.

Mr. YOUNG. The boll weevil has not made its appearance there?

Mr. MURPH. No, sir. That is a reason why we are interested in trying to show whether or not a particular character of cotton may also be substituted for Sea Island cotton. If this Meade cotton turns out well and can be substituted very largely for Sea Island cotton, we will be in a position to plant the Meade. The wiping out of 100,000 bales of that cotton was a very serious blow.

Mr. HUTCHINSON. Do not most of the long staples go into automobile tires?

Mr. MURPH. Yes, sir. One of the subsidiary companies of a tire company plants about 20,000 acres of American Egyptian cotton—

Mr. HUTCHINSON (interposing). This Sea Island cotton—in what particular goods is it used?

Mr. MURPH. It is used in fancy goods, fine goods, laces, and things of that kind, and it is woven into other goods that are of a more practicable, serviceable nature, but of a fine class.

Mr. HUTCHINSON. Mercerized cotton?

Mr. MURPH. Yes, sir.

The CHAIRMAN. Thank you very much, Mr. Murph.

MONDAY, JANUARY 12, 1920.

AFTERNOON SESSION.

The CHAIRMAN. What is next, Mr. Harrison?

Mr. HARRISON. Mr. Thompson, who is in charge of our State cooperation in marketing work, is compelled to leave the city this afternoon, and so, with your permission, we will take up item 91, on page 254. We will see that the discussion appears in its proper place when the hearings are printed.

TUESDAY, JANUARY 13, 1920.

AFTERNOON SESSION—continued.

The CHAIRMAN. The next item is No. 90, "To enable the Secretary of Agriculture to make studies of cooperation among farmers in the United States," and so on. That item is dropped from the Bureau of

Markets, because the work has been transferred to the Bureau of Farm Management, and the lump-sum appropriation correspondingly reduced.

The CHAIRMAN. We will be glad to hear you now, Mr. Thompson. You might state what item you will take up.

STATEMENT OF MR. C. W. THOMPSON, IN CHARGE STATE COOPERATION IN MARKETING, BUREAU OF MARKETS, DEPARTMENT OF AGRICULTURE.

Mr. THOMPSON. The item is No. 91, "To enable the Secretary of Agriculture to cooperate with the several States in the employment of agents to acquire and diffuse useful information connected with the distribution and marketing of farm products through investigational, demonstrational, or extension methods."

I call your attention to the map which shows in orange color the States in which we have cooperatively employed agents at this time. There is also indicated in green the States with which cooperative relations will be established in the event that the proposed increase in the appropriation is granted. In other words, we have under the existing item with the funds at our disposal cooperative relations with the States you see there in orange color.

The CHAIRMAN. Will you give the names of some of the States? The map will not show in the record.

Mr. THOMPSON. I shall indicate it in the record. Of course, I can give all the States now if you so desire. Cooperative work is being conducted with the following States: New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, Ohio, Indiana, Michigan, Virginia, North Carolina, South Carolina, Georgia, Tennessee, Mississippi, Missouri, Arkansas, Texas, Minnesota, Iowa, Nebraska, North Dakota, Montana, Colorado, Utah, New Mexico, Washington, and Oregon.

Mr. YOUNG. Wouldn't it be easier to give those with which we have no cooperative relations? There are only a few of those.

Mr. THOMPSON. Yes, sir. The States that are ready to take up cooperative work with us under this item, and with which it is intended to arrange relations, are Maine, New York, Pennsylvania, New Jersey, Florida, Louisiana, Wisconsin, South Dakota, Kansas, Oklahoma, Wyoming, and Idaho.

Mr. RUBEY. What State is that down there in white, in the South?

Mr. THOMPSON. That is the State of Alabama.

Mr. HEFLIN. What does that mean—the white?

Mr. THOMPSON. It means that those States have not taken up the matter with us to the extent of indicating that they would have funds for use in the cooperative employment of a joint marketing agent in the State.

Mr. HEFLIN. You mean to say that the bureau of markets in Alabama does not cooperate with your department?

Mr. THOMPSON. We have informal cooperation with every State, Alabama and all the others in white, the ones to which you refer, but when we say "formal cooperation," it means we contribute financially toward cooperative arrangements and contribute, perhaps, something toward the salary of cooperatively employed agents in the States.

The question you naturally would ask is, "How are these funds used?" Largely, I should say, on the salaries of marketing agents stationed in the States, who are cooperatively employed by a State agency and by the Bureau of Markets, and whose work is confined to the State for the most part.

Mr. TINCHER. In all of the States marked in orange you are spending money in that way?

Mr. THOMPSON. In all the States marked in orange we are now spending money, and the States themselves are spending from two to three times as much money as we are on the joint arrangement.

Mr. TINCHER. In the States marked in white you don't intend to spend any money next year?

Mr. THOMPSON. There is no present request such as we have in States marked in green. Now, it is possible that something might develop in the course of the year which would lead one of the States in white to take up the matter with us, and we with them, perhaps. It may be that one of the States painted in green would fail to come across so that we could make arrangements with them. For instance, take the State of Kansas. We had almost completed arrangements with the State of Kansas a considerable time ago for the employment of a man, but it happened that Kansas permitted the State of Wisconsin to take that man, Prof. Macklin. They appointed him on the staff of the State Agricultural College at Madison. Kansas has not been able since then to select a man, so the matter has been held in abeyance.

Mr. RUBEY. How many State legislatures have passed laws providing for some sort of a marketing system?

Mr. THOMPSON. There are 27 States that have what we call State market bureaus, which are provided for in one way or another under a special State law.

Mr. HEFLIN. Alabama is one of them.

Mr. THOMPSON. Alabama is one of those States. I have before me here a map which shows in red the States that have State bureaus of markets.

Mr. RUBEY. It might be well to put in the record the States that have those.

Mr. THOMPSON. Those States are as follows: Maine, New Hampshire, Vermont, Massachusetts, New York, New Jersey, Pennsylvania, Ohio, West Virginia, Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Missouri, Arkansas, Louisiana, Oklahoma, Texas, Wisconsin, Minnesota, South Dakota, Nebraska, Idaho, Washington, and California.

Mr. HEFLIN. What will it cost Alabama to get this cooperative work?

Mr. THOMPSON. The actual cost may be very slight. That is, we might put in a joint man under conditions where possibly the State would put in anywhere from \$1,200 to \$2,000. Of course, they have to pay the traveling expenses of the man. They pay for clerical assistance also. We apply our funds generally to the salary of the agent, leaving it to them to supervise the question of travel and local detail.

Mr. HEFLIN. Does the State that wishes to cooperate with you make application?

Mr. THOMPSON. It does.

Mr. HEFLIN. Do you tell it what is necessary to be done?

Mr. THOMPSON. That is one way. As a matter of fact, we make it a point, as rapidly as we can—I myself for one and others of the staff—as we travel through the States, we stop off as we can, both at the agricultural college and at the State bureau of markets, get acquainted with them, acquaint them with what we are doing, and show them the ways in which we can work with them.

Mr. JONES. The States that are in green on this map and the States that are in orange take care of it now through their State force; and the ones that are in orange have helped from the Federal Government?

Mr. THOMPSON. No; the States in green do not have marketing agents at this time. Those that are in green are the ones with whom we would establish cooperative relations if the increase were granted.

Mr. JONES. Do not the States themselves take care of it now without coordination with the Federal Government in the green States?

Mr. THOMPSON. To such an extent as they are conducting marketing work. However, you will find in many cases they are handicapped and they are not in a position to do what they would do immediately if we would join with them in the employment of joint cooperative agents.

Mr. TINCHER. Who are you corresponding with, for instance, in Kansas about their getting into this arrangement?

Mr. THOMPSON. In Kansas we have taken it up personally on the the ground at Manhattan with the agricultural college authorities, and they have also taken it up with us here in the city.

Mr. TINCHER. You say the reason they have not been participating in the fund is their inability to get a suitable man?

Mr. THOMPSON. That is the difficulty that interrupted our perfecting arrangements some time ago.

Mr. PURNELL. The trouble is they send their best men to Congress. [Laughter.]

Mr. TINCHER. They haven't a State law establishing a State bureau of markets, have they?

Mr. THOMPSON. They do not have a State bureau of markets, as you see here; no.

I have just been reminded that in speaking of the ways in which we operate—and that is the thing that I intend to come to presently—we cooperate, of course, with the State bureaus as well as with the colleges, and I could mention a number of States. Take, for instance, the State of Ohio. There we have a State bureau of markets, and we have the agricultural college, of course, at Columbus. We have cooperative arrangements with both.

I may say that in the State of Wisconsin, which is in green, we have a State bureau of markets, and we have a request from both the agricultural college and from the State bureau, and have taken steps, initial steps toward the perfecting of cooperative arrangements.

Mr. ANDERSON. What is the purpose of this cooperative arrangement? Is it extension work, or investigation, or what?

Mr. THOMPSON. It is both. It provides for extension work and for investigation work. These men, stationed either at the college or at the State bureau, are men that acquaint themselves as rapidly as

they can with local conditions, with a view to determining what the local marketing needs are, and with a view to developing a program of work along the lines which seem to promise best results in marketing work. Now, at the same time it is realized that the marketing work in any State, besides having its local aspects, which need to be understood first, also has its interstate aspects, and the agent who is cooperatively employed is a man who must be familiar not only with local conditions and needs, but must understand what lines, perhaps, are most important to take up. For example, in one State, such as the State of Iowa, it will be live stock or grain marketing; down in the State of Arkansas it might be sweet potatoes for one thing and live stock; out yonder in such States as Nebraska it might be grain marketing for one thing. It will be different in different States. The special lines that will be attacked at the outset will depend upon the marketing needs of the States.

Mr. PURNELL. What does all that mean? What do they actually do by way of investigation?

Mr. THOMPSON. They assemble information within the State regarding marketing organizations, in order to be in a position to assist local marketing organizations both in the organizing of associations and in keeping them going.

Mr. PURNELL. The Federal Bureau of Markets, then, merely assists the State organization?

Mr. THOMPSON. The Federal bureau assists the State organization through this jointly employed man in cases where perhaps they would not have any one man for particular studies. But in the main I will say that the work of these marketing agents is to furnish information, to serve as a clearing house of information to the farmers and to the farmers' associations in the State, and especially to the county agents.

Mr. PURNELL. Is their work beyond the experimental stage? Has it reached the point where you are able to say that the Government is justified in spending over a million dollars in conducting this sort of work?

Mr. THOMPSON. Your million dollars refers, of course, to something else, does it not?

Mr. PURNELL. It means to the whole matter. I don't mean this particular branch with which you are dealing, but I mean the Bureau of Markets generally. In your judgment, is it beyond the experimental stage?

Mr. THOMPSON. Yes; in many respects. There are many lines where we can show very definite results from particular activities, and where we can put a monetary value on the results of those activities.

Mr. PURNELL. How do you reach that conclusion as to its monetary value?

Mr. THOMPSON. To answer that it will be necessary, of course, to particularize.

Take, for instance, the example of our field agents—well, we will take one at a time—take the State of Iowa. One of the things that Mr. Foster, our field agent in Iowa did was to provide for a State exchange list, through which farmers and others, with the aid of the county agents, would find out where they could get pure-bred live

stock, seeds, and feeds, and, in other words, make known the surplus of pure-bred live stock and seeds by counties, so that they could exchange locally, instead of going outside of the State, perhaps, to get that information.

Mr. JONES. Let me interrupt you there. Why couldn't the State, through its own organization, do that same thing?

Mr. THOMPSON. That is the thing we are helping and encouraging the States to do.

Mr. JONES. Why couldn't the States do it themselves?

Mr. THOMPSON. The answer is that the States with whom we cooperate have not taken it up. They are not ready to do it. They haven't the money in some cases. Even where they have established State bureaus I could cite examples where they would not be able to take up the work they now have. In Ohio, for example, they would not have the funds; they would not be able to conduct the work.

Mr. JONES. Is it your opinion that these States would take this thing up when they saw the necessity of it if they knew they were not getting aid from the Federal Government?

Mr. THOMPSON. On the other hand, the answer I shall give is this, that our attitude is to furnish a sort of a nest egg where we give \$500, and they give \$1,500 or \$2,000, and the \$500 that comes from us makes it possible to appoint a \$2,500 or \$3,000 man, and it is from that point of view that we approach the appointment of these men in the States.

Mr. HEFLIN. You are trying to show these States the importance of it?

Mr. THOMPSON. Yes.

Mr. HEFLIN. And it may be that later on they can do the work, after they get organized?

Mr. THOMPSON. Yes. The more money they can put into it, of course, the less we will, and we always give a minor fraction of the funds necessary.

Mr. McLAUGHLIN of Michigan. You don't think there is any lack of money in Ohio, do you?

Mr. THOMPSON. There is not the money available at this time for the marketing work which is being conducted, and our funds have been instrumental in putting men in the State where there were none before.

Mr. JONES. How about Pennsylvania?

Mr. THOMPSON. The State of Pennsylvania has recently made provision, and rather generous provision, for a State bureau of markets.

Mr. JONES. I am going on the assumption that the various States have just as bright men to handle this proposition as the Federal Government could get from the States, and I can't understand why the States, if they see the necessity for this thing, can not develop it themselves. All the States that are financially able to do it are simply seeking Federal aid because the other States are getting Federal aid. That is the only reason they are getting it.

Mr. THOMPSON. The point raised is a very important one, I think, and the answer I believe would be this, that in order to handle the marketing work it has been approached from an interstate as well as from a local standpoint, and the States with the aid of their local information are not in a position to command the interstate relation and the facilities that we have in the Federal bureau which we combine with theirs in the conduct of the work.

Mr. JONES. Will you tell me why John Smith, because he is employed by the Federal Government, has more knowledge of interstate matters than John Smith who is employed by the State?

Mr. THOMPSON. Yes, sir. An example of that would be, for instance, the following: As a joint employee he would be brought in touch, in intimate touch, with all our projects.

Mr. JONES. In other words, he would study?

Mr. THOMPSON. He would study the problems.

Mr. JONES. Couldn't a fellow in the States study them, too?

Mr. THOMPSON. He would know our grades, he would know the standards for one thing, and he would be in a position to connect up with our market news services and help to make the market news service, which is a national service, connect up with the local service in the State, and thus extend the usefulness of the service within the State.

Mr. RUBEY. Isn't this a fact, that some years ago, before the United States Government began this work, there wasn't any of this work done, or practically none of it done in any of the States, and it was only after the Government took the initiative and organized the Bureau of Markets and got into this work and demonstrated the benefit of it that the States took it up and it became in general use all over the country? Isn't that a fact?

Mr. THOMPSON. Yes. I should go on further and say that it must be remembered that the information gathered by the Federal Bureau of Markets is outstanding in importance, and that it is a very important thing to get that information in a practical way to the States, to the farmers, to the county agents; and all these men that we are talking about are the intermediaries to whom the county agents and the State associations look.

If you will give me an opportunity I would like to illustrate concretely how these marketing men bring the information within the State.

Mr. ANDERSON. You just spoke about county agents. I think I will ask you at that point the question that we have asked everybody else. Why can't the county agent do all this work?

Mr. THOMPSON. Mr. Anderson, we are trying to get the county agents to do the work. These marketing men are simply teaching the county agents how to do it. Let me give you an illustration: Here is a marketing specialist invited down to see the county agent in a certain county, and he goes with him out into the country to take up a problem of importance in that county which perhaps takes him four or five different places. The method of this marketing agent, the specialist, is to put it up in such a way that the county agent gets it as quickly as possible, and before he gets through with his third or fourth place he leaves it not to himself to make the demonstration, but he has the county agent do it, in order that when he leaves him the county agent may be able to go on and do it in other places.

Mr. JONES. You, see, Mr. Thompson, we are trying to ascertain somewhere in the course of these hearings before we get through what the county agent really does, and we haven't been able to ascertain yet.

Mr. RUBEY. I want to ask unanimous consent that we recall the previous speaker and ask him to put into the record why the county agents can't take up this work in South America. [Laughter.]

Mr. PURNELL. I object.

The CHAIRMAN. Objection is raised, Mr. Rubey.

Will you kindly set out in detail the character of these demonstrations and investigations?

Mr. THOMPSON. In Nebraska, our man there, Mr. Filley, for instance, has at the request of the county agents and the farmers' associations, gone out and assisted in the organization during the past year of 13 farmers' cooperative grain elevators among the farmers; furnished them forms of by-laws prepared with the assistance of experts in the Bureau of Markets.

The CHAIRMAN. The department published them in pamphlet form many years ago. They did not have to go there to deliver the pamphlets.

Mr. THOMPSON. Mr. Haugen, no constitution and by-laws that the bureau has ever been able to prepare is such that we would recommend it generally without reference to local conditions. It is always necessary in developing a cooperative association, whether it be an elevator or anything else, to look into local conditions and to understand the local situation before giving final recommendations with reference to the by-laws and constitution.

The CHAIRMAN. Do you go out then and encourage the organization?

Mr. THOMPSON. Our work has consisted in furnishing information on request from the county agents and the farmers' associations or groups of farmers. It is supposed that they are ready to organize, they desire to organize, they want assistance, guidance, in regard to the form of organization and also afterwards in regard to forms of accounts that will enable them to know how their business is going on.

Mr. TINCHER. You mean in the State of Iowa that the customary way of organizing a cooperative association is not to depend upon some local man for important information, but to bring in the Federal bureau and find out how they can organize a cooperative association? In Kansas we don't have to have the help of the Government to organize a cooperative association.

The CHAIRMAN. We never asked their help in Iowa. We got along without it. [Laughter.]

Mr. JONES. That is the reason Kansas is green. [Laughter.]

Mr. THOMPSON. Assistance has been given in the organization of more than two dozen live-stock shipping associations and of 14 or more cooperative elevators in the State of Iowa, in elevator organization and also in certain cases of reorganization from the old stock company to a cooperative form of association.

Mr. PURNELL. What is the object to be attained—to find a market or to obtain for the producer a higher price for his products?

Mr. THOMPSON. To assist the producer in improving the methods of marketing farm products. For instance, to help him get information regarding grades and standards; give him information regarding organization of cooperative associations and accounts for those associations.

Mr. PURNELL. That is clerical.

Mr. THOMPSON. To take up the market news service, which gives him information regarding the movement of car lots to market and also prices in the different markets. The market news service tells

him where to ship his carloads of live stock, grain, or other commodities.

Mr. JONES. Is it the idea to take the same position with the farmers that Gompers does with the labor organizations?

Mr. PURNELL. I wish, Mr. Thompson, that you would just pursue the line that you are on there. I would like to know, as a matter of information, what is the ultimate object to be attained in connection with the establishment of these various marketing organizations and these organizations that the Federal Government assists in organizing? Is it to obtain a higher price for the producer or is it to help him find a market for his products?

Mr. THOMPSON. It is both.

Mr. PURNELL. Is there anything else to be attained—any other result?

Mr. THOMPSON. Yes; the typical cooperative marketing association helps the farmer, first, to know what to produce; that is, to show him what is the standardized commodity he should produce of a given kind, whether it is potatoes or whatever it is; it helps him in the matter of grading and assists him in the handling and storing of it locally; it furnishes him a sales agency through which carload lots are shipped right to the market and also information that tells him where the carloads should be sent to find a good market.

Mr. RUBEY. And it enables him to ship in carload lots.

Mr. THOMPSON. That is very important. Many of the farmers have small lots which by themselves are so small that they would not be able to ship them to advantage. By pooling their commodities in carloads they get the advantage of large-scale handling in shipping and economies that come from that sort of work.

Mr. HEFLIN. It is also beneficial to the consumer?

Mr. THOMPSON. Yes, sir.

Mr. PURNELL. That is just the thing I want to find out. If he gets better markets and higher prices, what does the consumer say about it?

Mr. THOMPSON. Of course, our work enables the farmer, all the farmers, to effect economies that on their side will give them better prices than they would get if they had to go it individually, and it enables them to eliminate certain wastes, to effect economies in handling and grading which gives them better prices.

Mr. HEFLIN. In other words, he can get his produce to the market under these improved methods cheaper than he could under the old system?

Mr. THOMPSON. Yes, sir.

Mr. PURNELL. And he can afford to take less for them?

Mr. THOMPSON. Individually the local farmers get a better price for the commodities that they handle as a result of the associations through which they do their business. On the other hand—well, I want to be sure that I am answering questions rather than going on with a statement that you are not interested in.

Mr. PURNELL. You were pursuing your argument, saying whether you thought it would be possible for him to get even a lower price for his products and yet make more money out of it.

Mr. THOMPSON. Of course, the point you deal with there possibly would come in more particularly if you were figuring on how, on

the farm itself, the farmer could produce a commodity at lower cost. Then he could afford to accept a lower price and still perhaps make a better profit. That is not our problem in the Bureau of Markets. That is a problem in the Bureau of Farm Management.

Mr. TINCER. How long have we had the Bureau of Markets?

Mr. THOMPSON. The Bureau of Markets began its work about six years ago. I think its first items were provided for in 1913.

Mr. HARRISON. The bureau was organized in May, 1913.

Mr. TINCER. Ever since its organization there has been a constant increase in the difference between what the grower receives for everything he produces and the price that the consumer pays for everything he consumes; so it hasn't been a very effective organization along that line.

Mr. THOMPSON. The point you raise, which has to do with general price levels, touches on much more fundamental things than can be approached by the activities of the Bureau of Markets. You are referring to general price levels, and the cause of price levels as such, and I am sure that all here understand that if you are going to attack the causes that lead to a gradual rise in the level of prices you have to deal with many things outside of the things that we are concerned with in the Bureau of Markets.

Mr. PURNELL. Has your experience enabled you to say what the individual producers all over the country think of the Bureau of Markets—how they feel toward it; whether or not they are in sympathy with it?

Mr. THOMPSON. Yes; we have a great many reactions with reference to that matter, showing us that our services are wanted far in excess of our ability to supply them. For instance, we have men whom, within the limits possible, we send into the States to furnish first-hand personal assistance, not to local farmers, because we could not afford to do that, but to associations of farmers, to cooperative agricultural and other extension agencies, and to agencies such as the secretaries of farmers' organizations in States, who themselves are busy with work directly with the farmers. I could illustrate it, I think, by saying this: That not long since, at the request of secretaries of farmers' grain dealers' associations in 12 States, our men met with them, and these men who themselves go out to organize cooperative elevators virtually agreed at that time upon a plan of organization, which was discussed and worked over with the aid of experts from the Bureau of Markets.

Mr. TINCER. Do you think any body of men in any kind of business should organize a cooperative association without sufficient intelligence in its membership to organize it without Government aid?

Mr. THOMPSON. No; there should not be any such organization.

Mr. TINCER. And do you think that the Government at this time should spend any money in encouraging the organization of cooperative associations?

Mr. THOMPSON. We never encourage any specific group of farmers' organizations directly.

Mr. TINCER. Then I can't understand what you mean to do with this money that the Government will appropriate toward cooperative associations. I can't understand just what you are going to do with that money.

Mr. THOMPSON. Of course the work on cooperative organization comes under another item specifically, but what we do is to furnish information for farmers who desire to organize. We feel that is the only way—our attitude is that the proper source of organization is the farmers themselves. They should know and finally determine whether or not they want to organize a given association. After they have so determined and then request our expert assistance, then we come with information such as we have, both as to plans of organization and as to records of accounts, to help them keep track of the organization after it has been established.

Mr. TINCHER. Most every State has a cooperative organization statute.

Mr. THOMPSON. That is a matter that has been developing somewhat slowly, and in some States they have statutes following the model prepared by the Federal Bureau of Markets.

Mr. TINCHER. Isn't a matter of procuring the blanks necessary and following the forms; but when you get down to the business that the cooperative association is going to transact, they have to be their own judges of that, don't they?

Mr. THOMPSON. Most certainly.

Mr. TINCHER. Now, let me see whether I understand you. What you really want with the money is to employ agents to go there and give them expert advice on how to run that business?

Mr. THOMPSON. If he is an organization specialist, yes. That is one of the things, and that is a very important thing from the standpoint of the organizations themselves; and, further, giving them assistance in records and accounts, so that they will know how to keep track of their accounts.

Mr. TINCHER. To keep books, you mean?

Mr. THOMPSON. Yes, sir.

Mr. TINCHER. That is, you furnish to those cooperative associations expert advice on how to keep the books of the corporation, and you tell them that they can get along without bookkeepers generally, don't you?

Mr. THOMPSON. Even if they have a bookkeeper the chances are that they have not an adequate system of accounts.

Mr. TINCHER. Ought they not to have a bookkeeper, no matter what system of bookkeeping they have?

Mr. THOMPSON. Yes, sir. They ought to have a system of accounts that tells them what they ought to know, and that is the thing that many of them do not have. I will say this with reference to that point that the National Association of Credit Men, after a survey that they made, have reported that they think about 85 per cent of the marketing agencies do not have the necessary information that they should have, that they do not have proper bookkeeping.

Mr. TINCHER. That is accounted for by the fact that some expert wants them to organize, and it is not pointed out to them that they need to have a bookkeeper.

Mr. THOMPSON. Oftentimes that may be true.

Mr. TINCHER. Then the principal thing to do is to hire a bookkeeper. Does not your bureau issue a bulletin on that?

Mr. THOMPSON. Bulletins are insufficient. Our experience has shown us that unless we can furnish first-hand personal contact, we will not get to them the kind of information they need. It is with

this demonstration work, in other words, as it is in many other things.

Mr. McLAUGHLIN of Nebraska. I believe you spoke of 24 organizations in Iowa that the bureau had helped to organize. Did I understand you correctly?

Mr. THOMPSON. Yes, sir.

Mr. McLAUGHLIN of Nebraska. And that your representative in Nebraska had assisted in perfecting 13 organizations in Nebraska?

Mr. THOMPSON. Yes, sir.

Mr. McLAUGHLIN of Nebraska. I understand that there are from 600 to 1,000 cooperative organizations in Iowa, and some 400 or 500 in Nebraska that have been operating for many years, most of them. Are we to understand that these few organizations that have been recently perfected are much more efficient than those that have been long established, or is it the purpose of the department to go ahead and assist all these other organizations that have been operating for many years?

Mr. THOMPSON. Our method is to help existing organizations, and to help new organizations where farmers are ready and want to organize new associations. But our work also consists in helping the old stock companies where farmers have organized under an old law, and where since then a cooperative law has been passed and they want to organize a cooperative society. The main part of our help is with existing organizations, not with new associations, and in the case of new associations is to help those groups that are ready to organize a new association.

The CHAIRMAN. Are these cooperative organizations generally successful?

Mr. THOMPSON. I can best answer by being concrete. In the State of Michigan they started some years ago organizing local potato associations for the marketing of potatoes. The joint agent, with our bureau, Mr. Tennant, assisted the local associations and afterwards helped them to organize a central potato marketing exchange at Cadillac. To-day they have 100 local potato marketing associations in Michigan, all of which market their potatoes through the central potato exchange at Cadillac. Last year they marketed something like 2,000 carloads through that central exchange. During the present year, up to the present time the indications are that they will market something like 3,000 carloads from that exchange, and I think that if you were to talk to the people there who are personally and directly interested in that enterprise, their answer will be, as it has been given to us, that it has been of immense benefit to the farmers connected with all of those 100 potato marketing associations.

The CHAIRMAN. Is that due to the activity of the department?

Mr. THOMPSON. The department assisted.

The CHAIRMAN. Who initiated it?

Mr. THOMPSON. We worked right with the farmers—

The CHAIRMAN. Who started it?

Mr. THOMPSON. The farmers themselves started certain local associations, but even then they asked the assistance of our joint representative in the organization of these local potato marketing associations. When it came to the work in the central exchange, they again asked the assistance of a representative of our central bureau. Mr. Tennant, the joint representative of the Bureau of Markets, and

the State has assisted them in the establishment of this potato marketing exchange for the State of Michigan.

That is only one example. I could cite State after State enterprises of that sort which have been set up, and where technical and expert assistance has come from the joint employee of the State and the Government. Supplementing this, further assistance in certain cases is offered by mail and personal help from the experts in the Bureau of Markets.

Mr. JONES. Did they all get the same price for their potatoes?

Mr. THOMPSON. In case they all sold the same grade. They have different grades, but all the shippers having a certain grade of potatoes have got the same price.

Mr. JONES. That is one of the purposes of the organization, is it not?

Mr. THOMPSON. Yes. Another example I can cite is in the State of Arkansas, where they have the problem of marketing sweet potatoes, and you have heard of the storing of sweet potatoes this morning. During the year they have perfected a series of 12 or 13 sweet potato marketing associations, and an exchange through which all the local associations market sweet potatoes. The same thing is true in Mississippi. As a result of that, a large number of carloads of these potatoes have been shipped and marketed through the central exchange, and important economies effected.

Mr. JONES. After one of these associations is established in the State and it works successfully, is it possible for other associations who contemplate organizing to obtain help from the one that is organized?

Mr. THOMPSON. Yes.

Mr. JONES. Then, why do you have to have the Federal agent do it; just as a matter of convenience?

Mr. THOMPSON. Because other associations, while they are glad generally to advise others who come to them, they do not feel competent from simply their own experience to advise the other associations in all the details.

Mr. JONES. How long does an agent stay in a locality to learn conditions sufficient to give him the knowledge to organize and meet the local conditions?

Mr. THOMPSON. I would like to say he does not organize. We never say that any of our agents organize, but they furnish technical information. He first gathers information, let us say, along many lines—the kind of information that is needed regarding any of these organizations—and then he visits the place, perhaps, once or twice in advance, looks into the matter, and takes it up with the local people themselves and supplies information that the people there want; and they must be ready to organize a local association before he gives assistance.

Mr. JONES. They organize because the experience that other farmers have had in their organizations shows that it is a beneficial thing to do. Do you not suppose that if they see the results are beneficial they would be able to perfect an organization without the help of the Federal agent?

Mr. THOMPSON. There are many times that they do. Many times the only question is whether they get it perfected as well as they should under the existing conditions.

Mr. JONES. They would work out their own salvation, would they not?

Mr. THOMPSON. Yes; many of them; and many of them fail at times.

Mr. ANDERSON. Many have been started that ought not to have been started?

Mr. THOMPSON. Quite so. Promoted associations have sometimes not succeeded. Following the last question of Mr. Anderson, there are many cases where it has been to the interest of some agency that wants to sell equipment, and they will go into a locality, regardless of local conditions, and induce the farmers to set up an association, so as to sell them something in the way of equipment without reference to whether they have proper use for the equipment. In the matter of establishing creameries, they often do not look into the question of whether they have cows in sufficient numbers to supply cream and to make it successful the year round. They do not look into the question of whether the farmers have the right number of cows and whether they have a reasonable chance of succeeding in advance. In the past many associations were started just because a promoter wanted to put something over on them.

The CHAIRMAN. Can you give the number of failures?

Mr. THOMPSON. The Bureau of Markets has not been able to get the data that I could quote as a percentage of failures. It differs with different types of associations. For instance, we have found fewer failures in certain kinds and relatively more in others, and still more in other kinds of cooperative endeavor.

The CHAIRMAN. Is the percentage of failures large or small?

Mr. THOMPSON. We have published a bulletin on the results of the cooperative stores, which showed a relatively large number of failures.

The CHAIRMAN. Were any of them successful?

Mr. THOMPSON. Yes. There are successful examples, even of that.

The CHAIRMAN. What percentage?

Mr. THOMPSON. I would not try to give a percentage on that. It is a very difficult kind of cooperation to enter into, and our bureau experts have not encouraged that particular kind of association, but advised them to be cautious, because it is a very difficult kind of association of which to make a success.

Mr. TINCHER. What did you advise in your book on cooperative stores?

Mr. THOMPSON. That was issued to show the result of the study of a certain number of selected cooperative stores, showing the actual results obtained in those cases, to act as an object lesson.

The CHAIRMAN. Is it not a fact that success depends upon the efficiency of the management of the concern?

Mr. THOMPSON. That is one very important factor, but not the only one.

The CHAIRMAN. What are the others?

Mr. THOMPSON. The manager may be ever so efficient, and yet there may be many things that he does not know and would be glad to know.

The CHAIRMAN. Markets, of course; we understand that.

Mr. THOMPSON. Let me give you an illustration of that. For instance, suppose we have an association which has been established—

a creamery. We have to have a system of records for the creamery. Now, in this record [indicating], you see the amount of butter made by months from January to July. Here [indicating] you see the actual expense, operating expense, per pound of butter. Now, if the manager of a creamery has the kind of accounts he ought to have, or the manager of any other association, whether it be fruit, produce, or creamery butter, or anything else, he ought to be able to compare the volume of business from month to month with the item of operating expenses from month to month to see how the business is progressing. In the month of February, in this case, where the volume was low, the expense was a little over 10 cents a pound, whereas in the month of May, where the volume was raised to 60,000 pounds of butter, the operating expenses per pound were less than 7 cents. That is one kind of information that he ought to have month after month, continuously, in order to know how his business is running.

Another kind of information that he ought to have as a creamery operator is this: He ought to keep his records in such a way that he can tell every month the year round the percentage of patronage returns from the sale of butter. For instance, this much goes to patrons in the shape of patronage dividends. In this particular case, the average was 89 per cent from the month of January to the month of July. If you were to go to the creameries of this country to-day and ask the managers to look up the account of a farmer member of this association, and ask him whether he can tell the exact relation between the patronage dividends and the total sales, or the relation of expenses to the volume of business, the chances are he can not tell you. Our experience is that very few of them can.

Mr. McLAUGHLIN of Michigan. How do you get those figures?

Mr. THOMPSON. We have made studies of the expenses of creameries.

Mr. McLAUGHLIN of Michigan. How?

Mr. THOMPSON. By expert accountants of our staff.

Mr. McLAUGHLIN of Michigan. You sent them to the creameries?

Mr. THOMPSON. Yes; men have gone to cooperative creameries to get data.

The CHAIRMAN. Do not the farmers in sparsely settled communities find it expedient to build creameries in order to cut down the expense of hauling and delivering the cream?

Mr. THOMPSON. Experience shows that they are very much in need of help of expert information of all kinds. I have indicated by example here in regard to successful creameries, and we could go on and cite cases.

Mr. TINCHER. Have you one of the men here to advise?

Mr. THOMPSON. We have only a small staff. We have six or seven men who are accountants who have made a special study of organization accounts.

Mr. TINCHER. I would like to talk to the man that you send out to these farmers who are going to organize the elevator. I would like to get a line on his talk.

Mr. THOMPSON. We have a man who used to be, some years ago, a manager and operator of a local grain elevator in the Central West.

Mr. TINCHER. Does he advise any cooperative association to start out without the service of some man who has had experience?

Mr. THOMPSON. No.

Mr. TINCHER. That is the first thing he advises it to do—to get a man who knows the business?

Mr. THOMPSON. Yes.

Mr. TINCHER. Is he not about through, then?

Mr. THOMPSON. No; for the chances are that, if they want a co-operative association, they will want to know how to organize an association as such.

Mr. TINCHER. Can you think of any branch of business, or any business in the United States, that would not need Federal aid and advice in its organization if an ordinary grain elevator company needs it?

Mr. THOMPSON. I am not sure that I get your question.

Mr. TINCHER. Assuming that a body of men organized to build a cooperative farmers' elevator needs Federal aid in the way of expert advice; now tell me some business that does not need the same degree of Federal aid—some private business?

Mr. THOMPSON. There is inefficiency in marketing agencies more or less generally. Of course our intention has been to try to study lines of efficiency in marketing agencies and to render assistance wherever we can, wherever it will save waste.

The CHAIRMAN. In your opinion, or in the opinion of the department, are these cooperative organizations of great importance?

Mr. THOMPSON. Yes.

The CHAIRMAN. You naturally wish to encourage them?

Mr. THOMPSON. The Secretary has made special reference to it in his annual report.

The CHAIRMAN. You encourage them?

Mr. THOMPSON. Where worthy.

The CHAIRMAN. You stated awhile ago that you did not encourage them, but only responded to requests.

Mr. THOMPSON. I do not want to be misunderstood, because that is one point about which there has been some misunderstanding, and I trust anything that I may say will not lead to further misunderstanding. We believe in encouraging cooperative associations among farmers along certain particular lines.

The CHAIRMAN. You encourage cooperation?

Mr. THOMPSON. Yes.

The CHAIRMAN. And the organization on cooperative lines?

Mr. THOMPSON. Yes.

The CHAIRMAN. That is, generally—throughout the country?

Mr. THOMPSON. Yes.

The CHAIRMAN. But I understood you to say a moment ago that you did not offer any advice or any encouragement on cooperation.

Mr. THOMPSON. What I intended to say a moment ago was this, that we would never undertake to go to any group of farmers and say, "You farmers ought to organize such and such an association." We leave to them the question of deciding whether or not they ought to organize. We give them information as to what an association has been doing elsewhere, and we tell them about the results elsewhere, and the dangers that they have where they do not organize right, but we insist that it must be left to them to decide and not to any promoter to go to them as a group to decide whether or not they should organize an association.

Mr. ANDERSON. You are not actively and indiscriminately engaged in promoting cooperative enterprises?

Mr. THOMPSON. We are not.

Mr. McLAUGHLIN of Michigan. For my own information, I wish you would tell me why you think the Government of the United States should take part in the organization of cooperative stores.

Mr. THOMPSON. As a matter of fact, on that particular subject, we do not take part, because it happens to be a field where our experience so far has made us realize that it is so hazardous that the advice of our men has been not to undertake, at least to go out and encourage it.

Mr. McLAUGHLIN of Michigan. Heretofore you have to some extent advised. Why should the Federal Government do that?

Mr. THOMPSON. I think we have not sent anyone, to my knowledge, to the farmers, or to anybody that wanted to form a cooperative store. To my knowledge we have never offered them assistance in organization. I think the reason for that is that we have felt that assistance to farmers in cooperation along relatively more simple lines where real success is more assured is safer, and therefore we confine ourselves to other lines of cooperation where from our point of view we feel that we could assist them more satisfactorily.

Mr. McLAUGHLIN of Michigan. If you thought that that could be done successfully, would it be part of the Federal Government's business to go out and show the people how to run a cooperative store?

Mr. THOMPSON. Of course, as I have stated, we have never taken up that matter, and we are not now asking any item to be used for that purpose.

Mr. McLAUGHLIN of Michigan. In my judgment it is none of the Federal Government's business.

Mr. THOMPSON. We are not recommending any item which we propose to use for that purpose.

The CHAIRMAN. Did you assist in the cooperative buying organization here in the District?

Mr. THOMPSON. We gave no direct assistance in that matter, to my knowledge.

The CHAIRMAN. Did you assist the Treasury Department?

Mr. THOMPSON. We gave no direct assistance in that matter, to my knowledge.

The CHAIRMAN. They have such organizations in the Treasury Department, have they not?

Mr. THOMPSON. I understand they have.

The CHAIRMAN. Have you any in the Department of Agriculture?

Mr. THOMPSON. We have none, to my knowledge, of the kind that we have in the Treasury Department or the Department of the Interior. They may have informal buying clubs on a small scale, but they have no large general departmental club of the kind I understand that they have in the Treasury Department and in the Interior Department.

The CHAIRMAN. It does not matter by what name it goes; it is along the same line. Have you met with any opposition on the part of the merchants or the middlemen throughout the country? Do they feel that you are encroaching upon their territory?

Mr. THOMPSON. There are times when possibly there may be criticism; and there is criticism, of course, along all constructive lines against it, either wisely or unwisely.

The CHAIRMAN. The purpose is to put the middleman out of business, to sell directly from the farm to the consumer?

Mr. THOMPSON. So far as we can effect economies, of course, we do away with unnecessary middlemen's profits, but our thought is: When farmers come to us and say that they are ready to form an association, we tell them what is needed for an association that will enable them to market their products more efficiently, and we proceed to give them assistance and advice on request.

The CHAIRMAN. What advice do you give as to the middleman—the necessity of the middleman in the community; a stock buyer, a grain dealer, an implement dealer, a storekeeper? Do you take that into consideration?

Mr. THOMPSON. There are cases where, of course, farmers have a cooperative organization where there are private elevators, may be, generally so. Naturally, it is not our business to tell them they can do away with this or that private enterprise. That is not a thing that we enter into. We look specifically at the economies which the farmers themselves as such can effect through their effort to get the proper facilities.

Mr. HEFLIN. In getting their potatoes to market?

Mr. THOMPSON. In getting their potatoes to market without entering into the question of doing away with this or that other private man's business.

Mr. McLAUGHLIN of Michigan. Can you tell us how many men you have employed to go about the country and examine the books of the creamery companies?

Mr. THOMPSON. We have not more than one such man at this time. He is on the staff of the project on market business practice. I am discussing another item. I am not discussing this item here. That comes under another item, being looked after by the project known as market business practice.

The CHAIRMAN. How many items have you in this bill with reference to cooperation?

Mr. THOMPSON. The investigation of market business practice is provided in another item, item No. 80.

The CHAIRMAN. Are there any others?

Mr. THOMPSON. No others.

The CHAIRMAN. Can you estimate the amount to be used in the two items for this purpose?

Mr. THOMPSON. The investigation of market business practice as such is a separate item.

The CHAIRMAN. Could it not be brought under one head, so that we would not have to divide it up?

Mr. THOMPSON. For that particular item about \$22,000 is estimated.

Mr. McLAUGHLIN of Michigan. Which one is this?

Mr. THOMPSON. It is under item No. 80, which is split up into a number of different lines of work. We finished with that item this morning.

The CHAIRMAN. Could it not be combined all under one item?

Mr. THOMPSON. The work is different.

The CHAIRMAN. It is cooperative work.

Mr. THOMPSON. No; item 80 provides for people on our staff here in Washington who have studied these problems as members of our staff. The item we are now discussing, under 91, provides for cooperatively employed agents in all the different States, stationed in the different States, with respect to all investigational and demonstrational lines of work.

The CHAIRMAN. The one you are discussing has reference to field work?

Mr. THOMPSON. Yes.

The CHAIRMAN. The other is in the department in Washington?

Mr. THOMPSON. Yes, sir.

The CHAIRMAN. Item 91 has reference to field men?

Mr. THOMPSON. Field men.

The CHAIRMAN. That is expended out in the country—in the field? This amount carried in 80 is for expenses in Washington?

Mr. THOMPSON. Yes, sir. I should like to say further that, of course, these field men do not represent simply organizations and market business practice. Their demonstrational work covers all the lines of work in the Bureau of Markets. They are called upon to furnish assistance to county agricultural agents in grades and standards, in market news service, in all the different lines of marketing work with which the Bureau of Markets is concerned. They act as a sort of clearing house of information for the entire Bureau of Markets in the States.

The CHAIRMAN. Is it not a fact that your agents in the States act as a clearing house for information in the State?

Mr. THOMPSON. Yes.

The CHAIRMAN. I think that is excellent work. He advises of the supply in certain localities?

Mr. THOMPSON. All the county agents in the States look to him as a market expert to advise them.

The CHAIRMAN. He issues circulars?

Tr. THOMPSON. Yes, he does.

The CHAIRMAN. He also advises the county agents where they can procure products?

Mr. THOMPSON. That is work he is called upon to perform, all sorts of information about marketing to county agents.

The CHAIRMAN. You are a sort of bureau of information for the county agents?

Mr. THOMPSON. Yes.

The CHAIRMAN. They come to you for the information?

Mr. THOMPSON. Yes. It is a clearing house for the entire bureau for all the extension forces of the State.

The CHAIRMAN. Why is it separated from the State's Relations Service? Why should it come under two heads?

Mr. THOMPSON. In order that this particular man, this marketing agent in the State, might be able to give to the county agents the kind of information they ask regarding marketing it is necessary for him to be in intimate personal contact with all the subject matter of any of the projects of the Bureau of Markets, and that enables him to get the benefit of direct information from all the subject-matter men we have, whether grain marketing, live-stock marketing, or what not.

The CHAIRMAN. How many men do you have in each State?

Mr. THOMPSON. Ordinarily one to a State. The State may sometimes appoint an additional expert, live-stock marketing man, or grain-marketing man, depending on how far the State can go.

The CHAIRMAN. What is the average expense of each?

Mr. THOMPSON. That the State pays?

The CHAIRMAN. What does the Federal Government pay on an average for each State?

Mr. THOMPSON. I should say something around about \$2,000 perhaps would be an average.

The CHAIRMAN. Is that all?

Mr. THOMPSON. That is all about this item; yes.

The CHAIRMAN. We are very grateful to you, Mr. Thompson.

TUESDAY, JANUARY 13, 1920.

AFTERNOON SESSION—continued.

STATEMENT OF MR. GEORGE LIVINGSTON, ACTING CHIEF OF THE BUREAU OF MARKETS, DEPARTMENT OF AGRICULTURE—Continued.

Mr. LIVINGSTON. I should like to say, Mr. Chairman, that in listening to the discussion yesterday, I was not sure that the committee got the full meaning of what we are doing under item 91. I am afraid the committee got the impression that item 91 relates primarily to cooperative organizations. That is not the case, because under item 91 the State agent in marketing deals with all the work that we are doing in the Bureau of Markets—all of those three subdivisions—investigational, demonstrational, or extension work. In other words, he is the clearing house for information regarding all of the work that we are doing in the bureau. Cooperation is only a part of that work. I wanted to make that statement in order to clear the record.

The CHAIRMAN. The reason why the discussion was confined largely to that particular part of the work is that that matter has perhaps attracted more attention than any other phase of the work.

Mr. LIVINGSTON. Mr. Thompson, of course, is handling the cooperative work in addition to this particular item.

The next item, Mr. Chairman, is 92:

For investigating the handling, grading, and transportation of grain, including the grain sorghums, for the purpose of fixing definite grades thereof, \$81,150.

The committee knows that we have already established standards for corn, wheat, oats, and that we have at this time standards for milled rice regarding which hearings will be held very soon. We are working now on grades for barley, rye, flaxseed, and grain sorghums, and just as soon as we can arrive at satisfactory standards for those grains we will announce tentative standards and hold hearings, and later promulgate them under the grain standards act. We are ask-

ing for no increase in this item. It stands substantially as it did last year.

Mr. YOUNG. What kind of satisfaction have you given to the trade with reference to the standards that you promulgated on wheat and corn?

Mr. LIVINGSTON. I will say, Mr. Young, that since the price adjustments have been made by the Grain Corporation, the grades for wheat have been received very favorably by producers and grain handlers. In fact, there has been little or no complaint of the grain standards since the price matter has been adjusted. Our great difficulty came at the time when there were fixed prices and fixed grades, but now that wheat is selling at a premium over the guaranteed price we hear little or no complaint regarding the wheat standards.

Mr. HARRISON. Showing that the difficulty was not with the grades but with the price?

Mr. LIVINGSTON. Yes; which makes the point that we have made all along, but which it was very difficulty to convince people of—that the difficulty was with the fixed price and not with fixed grades.

Mr. YOUNG. We have the same trouble. I am not so familiar with the wheat, but our trouble with cotton is really more difficult than with grain, although we have some with grain. I think the price item cuts a good deal of figure in that. For instance, if I sell 100 bales of cotton and that cotton goes up in price to-morrow, whatever the grade is, I don't usually have any trouble in getting my cotton passed through; but if it goes down in price we have a hard time.

Mr. LIVINGSTON. Yes, sir; that is universal experience.

The CHAIRMAN. What was the spread between the grades, for instance, of wheat? Is it not a fact that that has been modified considerably by the Grain Corporation?

Mr. LIVINGSTON. Yes, sir; they narrowed up the spread. I haven't got the figures with me.

The CHAIRMAN. Who is responsible for the first spread?

Mr. LIVINGSTON. All price matters have been the concern of the Grain Corporation, and all changes in prices have been made as the result of their decisions.

The CHAIRMAN. Does the grain act provide that it should be determined by the Secretary?

Mr. LIVINGSTON. No, sir; not price.

The CHAIRMAN. You have nothing to do with determining the spread?

Mr. LIVINGSTON. Not in price; no, sir.

The CHAIRMAN. You never have had anything to do with it?

Mr. LIVINGSTON. We never had anything to do with it.

The CHAIRMAN. It was fixed by the Grain Corporation?

Mr. LIVINGSTON. Yes, sir.

The CHAIRMAN. The Grain Corporation was responsible for it?

Mr. LIVINGSTON. Yes, sir.

The CHAIRMAN. Did the Grain Corporation try to convince the people that you were responsible for it?

Mr. LIVINGSTON. I wouldn't say that, Mr. Chairman. I would say that there was a lot of misunderstanding on the part of the producers and grain dealers in the country as to whether the prices were responsible or whether the grain standards were responsible.

The CHAIRMAN. As I recall, the spread was 52 cents. That was modified to 12 cents.

Mr. LIVINGSTON. I have forgotten just what changes were made, but I know they have narrowed the spread between grades very materially.

The CHAIRMAN. My recollection is they narrowed it 40 cents.

Mr. LIVINGSTON. I think probably you are right.

Mr. HEFLIN. Did the trade make any suggestions to the Grain Corporation that you know of?

Mr. LIVINGSTON. I think the Grain Corporation obtained suggestions from a great number of people, including the trade and the producers, and, I think it was last spring, the price differentials were changed.

The CHAIRMAN. The contention is that the spread remained at 52 cents until the grain had been marketed by the farmer, and when in the hands of the speculators the spread was modified to the extent of 40 cents a bushel, so that the speculator profited to the extent of 40 cents a bushel.

Mr. LIVINGSTON. Of course, the price of grain has gone up very materially.

The CHAIRMAN. I have reference to the spread; who fixes the spread?

Mr. LIVINGSTON. We had nothing to do with it.

The CHAIRMAN. Then we have the responsibility located.

Mr. HEFLIN. You don't think the Grain Corporation fixed the spread at 52 cents while it was in the hands of the farmers, and then as soon as it got out of the hands of the farmers reduced it to 12 cents, do you?

Mr. LIVINGSTON. No. My understanding is that the spread was changed by the Grain Corporation at the earnest solicitation of farmers from North Dakota and Minnesota. They sent a delegation down, and I think probably some Members of Congress accompanied the delegation to see Mr. Barnes, and as a result of the interview price differentials were changed. I do not recall the exact time at which that change took place.

The CHAIRMAN. That was practically after the marketing of the grain by the farmers. The largest part of the grain had been marketed by the farmers.

Mr. LIVINGSTON. The price that obtained up to that time was the same price differential that had existed during the past year with the previous crop. The price differential was changed for the 1919 crop.

The CHAIRMAN. Not this crop. It was after the marketing of a great deal of the crop.

Mr. LIVINGSTON. It was not at the time of the reorganization of the Grain Corporation; it was later—I don't recall the date.

Mr. BESLEY. It was last fall; approximately November 1.

The CHAIRMAN. By November, of course, practically all the wheat had been marketed.

Mr. BESLEY. A good deal of it had.

The CHAIRMAN. Practically all the wheat had been.

Mr. LIVINGSTON. Particularly the red winter wheat and the hard winter wheat.

Mr. JACOWAY. Then the man that produced the wheat didn't get the benefit, but the speculator did?

The CHAIRMAN. The farmer that produced the wheat lost 40 cents—or whatever the spread was—a bushel, which the speculator made.

Mr. LIVINGSTON. The spread was never definite, because the Grain Corporation didn't fix the price on sample grade. The spread was fixed between the first three grades, and the rest of the wheat falling below grade No. 3 was sold on sample, although I think in the last revision there was a price fixed on No. 4.

The CHAIRMAN. Does the Grain Corporation buy on sample?

Mr. LIVINGSTON. Yes, sir. I don't know how much sample wheat they buy, but when they buy wheat in the market they either buy on sample or buy it on grade.

The CHAIRMAN. Is that the practice of the Grain Corporation?

Mr. LIVINGSTON. If they have a representative in a market like Chicago, who buys from the table, he may buy some sample grade wheat. I don't know what proportion of their purchases were of that grade.

Mr. HEFLIN. How many grades of wheat are there?

The CHAIRMAN. How do the salaries paid by you compare with the salaries paid to the same people before you took them over?

Mr. LIVINGSTON. Mr. Chairman, I think I can answer that question by stating that since August 1, 1918—

Mr. HARRISON. He has in mind salaries under the grain standards act.

Mr. LIVINGSTON. We will be very glad to take that up when we reach that item.

The next item is 93, "To enable the Secretary of Agriculture to carry into effect the act entitled 'An act to fix standards for Climax baskets for grapes and other fruits and vegetables, and to fix standards for baskets and other containers for small fruits, berries, and vegetables, and for other purposes,' etc."

We are asking for a small increase in this item, Mr. Chairman. You will note that the amount of money available this year for the enforcement of this act is only \$3,800. It has been almost impossible to discharge our responsibility with credit to ourselves or with satisfaction to the country on \$3,800. We are therefore asking for an increase of \$1,000. If the committee desires, I will be very glad to have Mr. Sherman, who is in charge of the enforcement of this act, make a brief statement about it.

The CHAIRMAN. It is a small item. I presume the work is about the same as explained in previous years, and that you are doing good work.

Mr. LIVINGSTON. The next item is the cotton futures act.

The CHAIRMAN. It is now 5 o'clock. I suggest that we take a recess until 10 o'clock to-morrow.

(Thereupon, at 5.20 o'clock p. m., the committee recessed until 10 o'clock a. m., Wednesday, January 14, 1920.)

COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Wednesday, January 14, 1920.

BUREAU OF MARKETS—Continued.

The committee met at 10 o'clock a. m., Hon. Gilbert N. Haugen (chairman) presiding.

The CHAIRMAN. You may proceed, Mr. Livingston.

Mr. LIVINGSTON. Mr. Murph will make a statement to the committee regarding the cotton futures act on page 257.

FURTHER STATEMENT OF MR. DANIEL S. MURPH, SPECIALIST IN COTTON MARKETING AND WAREHOUSING, BUREAU OF MARKETS, DEPARTMENT OF AGRICULTURE.

The CHAIRMAN. Kindly read the first line of the item.

Mr. MURPH. This is item 95, on page 257, "To enable the Secretary of Agriculture to carry into effect the provisions of the United States cotton futures act, as amended March 4, 1919," etc.

There is an apparent increase in this item, including the transfers to the statutory roll, of about \$79,000. That increase, however, is only apparent, because there was available this year for the enforcement of the United States cotton futures act, in addition to the amount carried in the annual appropriation act, an amount approximating \$100,000. As you will recall, there were some amendments to the cotton futures act in the wheat price guaranty act of March 4, 1919; and an allotment of \$100,000 was made under that act for carrying out the purposes of those amendments.

Mr. ANDERSON. I want to have this perfectly clear in my own mind. Of the \$3,000,000 of funds carried in the wheat guaranty act of administration, do I understand that \$100,000 was allotted for the purpose of carrying out that portion of the act which was represented by the amendment relating to cotton?

Mr. MURPH. For the amendments to the cotton futures act; that is correct. My attention has been called to the fact that the details of the figures in the notes under the enforcement of the United States cotton futures act are slightly inaccurate, but the real situation is the same, that is to say, there really is a decrease as between this estimate, the appropriation asked for in this estimate, and the amount of money available this year for carrying out the United States cotton futures act, of a little over \$20,000. That is to say, instead of there being an actual increase in the amount of money made available, there is really a decrease of a little over \$20,000.

That is the explanation, Mr. Chairman, as to the financial situation, and I wonder whether the committee would be interested in knowing something of the activities of the Bureau of Markets under the amendments that were made to the act under the wheat price guaranty act.

Mr. ANDERSON. Before you pass to that, I am curious to know what there was in this amendment to the cotton futures act. As I recall, it was largely a change of standards that made it necessary to expend \$100,000 additional in its enforcement.

Mr. MURPH. That amount was made available, but my thought is that we will not expend all of that \$100,000. I am expecting we will get through the year without the expenditure of all of that.

Mr. ANDERSON. As to that proposition, I must say that it never was suggested by anybody when that amendment was under consideration that the adoption of that amendment would cost 1 cent more in administration than the act had cost previously.

Mr. MURPH. I can not answer for that. I happened to be away on sick leave at the time these amendments were considered and passed, and I am not familiar with the negotiations surrounding the passage of the amendments. I can point out to you why there was need for an additional amount of money for carrying out those amendments.

Mr. ANDERSON. That is what I want.

Mr. McKINLEY. How much more was spent?

Mr. MURPH. The year has not yet expired, and I am not able to answer that.

Mr. McKINLEY. You can say how much more is spent to-day?

Mr. MURPH. You mean how much of the appropriation of \$100,000 has been expended?

Mr. McKINLEY. Yes.

Mr. MURPH. About \$35,000, I think. That is given merely from memory. I think it is about \$35,000.

Mr. HEFLIN. It has been about 8 or 9 months since the law went into effect.

Mr. MURPH. Yes. Now, Mr. Anderson, in making the explanation as to what is done under the amendments, I think we will also answer the question that you have in mind as to the necessity for additional expenditures. One amendment under the cotton futures act provided that the Department of Agriculture—the Secretary of Agriculture—should classify cotton to be delivered on section 5 future contracts. That necessitated the establishment of a board of examiners at New York and New Orleans, the points at which the future exchanges are located. A board of examiners, with the necessary equipment and the necessary clerical help, was established at each of these two points.

Mr. McLAUGHLIN of Michigan. At New York and where?

Mr. MURPH. At New York and New Orleans, where the future markets are. This classification of cotton before delivery on future contracts took the place of the classification of cotton in the determination of disputes that might arise as to the classification of cotton, as you gentlemen will recall. In other words, it was conceded that to have the Government classify the cotton before it was delivered rather than to wait upon Government classification after the delivery of the cotton, in case the classification of the cotton was disputed, would be of value to the trade and everybody concerned in the handling and the marketing of cotton. The Secretary was authorized to create a revolving fund out of costs assessed for the classification of cotton under the amendment. That has been done, and the charge assessed at present is 30 cents per bale.

In addition there is some loose cotton that accumulates—waste—and this is sold, and the returns from this are also used as a part of the revolving fund.

Of this \$100,000, \$30,000 was set aside as a revolving fund. The other \$70,000 was set aside for the purpose of making more com-

plete investigations of cotton prices in the primary markets and other spot markets in order that the producers and others interested might have an opportunity to be advised as to the actual prices at which cotton was being sold. The report of the House Committee on Agriculture accompanying the bill which finally eventuated in the amendment pointed out that the purpose of certain changes in the legislation was to enable the Secretary of Agriculture to obtain information as to the prices for grades that were made untenderable by the amendments to the act. Prior to March 4, 20 grades of cotton were tenderable on future contracts. The act of March 4 reduced the number of grades tenderable on future contracts to 10. Objection was raised by many people to the amendment upon the ground that the cutting off of 10 grades from delivery on future contracts would deprive those who held cotton of such grades of an outlet for the delivery of this cotton and would also prevent producers and others from having the advantage of knowing what cotton of those grades was worth. The report of the committee, as I said a moment ago, showed that Congress intended that the Secretary of Agriculture should obtain information with reference to prices on those untenderable grades.

Mr. ANDERSON. Do you get the authority from the report of the committee or from the law itself?

Mr. MURPH. The authority is in the law, but I mention the report of the committee merely as substantiating our belief that that was the intention of the law. The law was amended so as to give the Secretary of Agriculture a great deal of additional authority to get information, and the report showed that that was the purpose for which it was intended that this information should be obtained. We did not go outside of the law, but merely referred to the report of the committee because it was corroborative of our understanding of the intention of the law.

Mr. ANDERSON. Right on that point: The seventh paragraph of this act provides that all money collected as such costs may be used as a revolving fund for carrying out the provisions of this subdivision of section 5 of the act as amended. Do you construe that as authorizing the use of \$30,000 of the appropriation for the administration of the price-guaranty act for the establishment of this revolving fund?

Mr. MURPH. That amount was allotted to the department for this purpose, Mr. Anderson, by the Treasury Department, presumably. As I say, I was away from Washington for four or five months about that time, and I do not know just the negotiations which led up to that, but evidently the Treasury Department was satisfied that there was authority for the allotment of \$100,000 for that purpose.

Miss LYNE. The President allotted that much from the funds available for administration out of the emergency act, because there was no special fund provided in the act for the enforcement of this cotton legislation.

Mr. ANDERSON. That is the exact point I am trying to make, that there was no authority for the use of this \$100,000 at all. The President deliberately, and apparently without any authority of law, allotted \$100,000 of this \$3,000,000 for this purpose.

Mr. HARRISON. Mr. Morrill will be glad to explain the legal phases of the matter.

Mr. MORRILL. I have not the wheat price guaranty act before me, but you will find that the appropriation provides that the money shall be available for carrying out the wheat price guaranty and otherwise for the purposes of the act.

Mr. ANDERSON. That is very true.

Mr. MORRILL. And when the situation arose that we would have to enforce this amendment, it was necessary to consider where the money would have to come from, because it was an entirely new activity that had not been provided for in the existing legislation under the cotton futures act. Therefore, the question was taken up as to the advisability, and legality also, of obtaining an allotment from the wheat price guaranty act appropriation for the purposes of this amendment to the cotton futures act, the one the classification of cotton and the other the quotations. The President made the allotment of \$100,000 and the Solicitor of the Department of Agriculture held that that was legal. As the Treasury issued the warrants the Treasury must have been satisfied regarding the legality.

Mr. MURPH. You will understand that the amendments required the department to do certain things which previously it had not been required to do, and to do which, therefore, in the funds available for carrying out the cotton futures act as unamended, there was no money available. In other words, without an allotment from this fund or from some other source the Department of Agriculture would have been powerless to carry out the amendments which Congress had made to the legislation.

The CHAIRMAN. Is this revolving fund to be made permanent?

Mr. MURPH. That revolving fund is to be a permanent fund, and as stated in the note that fund is to become permanent, and for that reason we have not requested any appropriation this year for carrying on that particular work.

Mr. ANDERSON. Of what is that revolving fund made up, outside of this \$30,000?

Mr. MURPH. That is all.

Mr. ANDERSON. The act evidently contemplates that some costs shall be assessed against somebody and collected and paid into this fund?

Mr. MURPH. I do not quite understand you. The \$30,000 is the capital on which we started that revolving fund. For the classification of the cotton on the exchanges 30 cents a bale is charged. There is a certain amount of loose and waste cotton that accumulates, and that is sold. All receipts are added to the fund. The expense is charged against the fund, and the whole is used as a revolving fund.

Mr. ANDERSON. Is 30 cents a bale self-sustaining? Does that cover the cost of the operation?

Mr. MURPH. I was going to say that up to the present the costs assessed are approximately about \$3,600 less than the outlay. Of that amount about \$2,800 represents investment or expenditures that will not have to be duplicated, expenditures incident to the beginning of the work; so that, aside from that \$2,800 of expenses which will not have to be duplicated, there is an excess of about \$800 in expense over costs assessed. Now, as you gentlemen know, the amount of cotton delivered on the future exchanges, and hence the amount classified from day to day and from week to week, depends on market conditions. Some months there may be very heavy deliveries, and

consequently very large quantities of cotton classified. Other months there may be very little cotton delivered and hence very little classified; so that the receipts vary from month to month. During the fall I may say that there were longshoremen's strikes in both New York and New Orleans which interfered with deliveries. We had reliable information, for instance, from New Orleans that the delivery of 15,000 bales of cotton was contemplated, but it never was delivered. It was found almost impossible, physically, to deliver the cotton. Even if only that 15,000 bales had been delivered, the costs assessed would have been greater than the expense of the service up to date. I merely state that to show the exigencies that arise from month to month.

We feel that this service has hardly been going long enough to enable us to judge accurately as to whether the present charge of 30 cents a bale is going to be sufficient to make it self-sustaining. We feel that we ought to watch the course of income and outgo for a little longer, and then if we find it apparent that the costs will not cover the expense, we will increase the charge per bale.

Mr. ANDERSON. Let me see if I have this proposition clear in my own mind. I understand that before we passed this amendment it was the practice for the department only to classify and grade cotton where it was delivered under contract, and dispute arose as to whether it was deliverable on the contract or not.

Mr. MURPH. Yes.

Mr. ANDERSON. Under this amendment, instead of waiting for the dispute to arise after the delivery of the cotton you proceed to classify it before it is delivered.

Mr. MURPH. That is correct.

Mr. ANDERSON. You say that the money which was available for the enforcement of the act before the amendment was not available for the enforcement of the act as amended. Am I correct about that?

Mr. MURPH. That there was not enough money for carrying out the purposes of the amended act.

Mr. ANDERSON. That is what I wanted to be clear about. Then this \$100,000 is assumed to be in addition to the appropriation that was originally carried in the appropriation bill, on the theory that it costs more to enforce the act as amended than in its original form. Am I correct about that?

Mr. MURPH. Yes; that is correct.

Mr. ANDERSON. All right.

Mr. YOUNG. Your hope is that this revolving fund, after you have done a little further work in it, will be self-sustaining?

Mr. MURPH. Oh, yes; we expect to make it self-sustaining if we have to increase the charge per bale.

Mr. MCKINLEY. If that is the fact, why do you practically ask for \$73,000 now?

Mr. MURPH. We are asking for \$20,000 less than we have this year.

Mr. MCKINLEY. But you ask for \$100,000, and you only use \$30,000 for the revolving fund.

Mr. MURPH. I was coming to an additional point.

The CHAIRMAN. Why should the revolving fund be made permanent?

Mr. MURPH. In the opinion of the solicitor, while the rest of the wheat price guaranty act expires not later than June 1, the parts of

that act which relate to the amendments to the cotton futures act are permanent legislation, and therefore the part of the act relating to the revolving fund is permanent.

The CHAIRMAN. That has been settled by the solicitor?

Mr. MURPH. Yes.

The CHAIRMAN. Why should it be made permanent?

Mr. MURPH. You mean as to the merits of the revolving fund?

The CHAIRMAN. Yes.

Mr. MURPH. It is on the basis that those who receive the service should pay for it without cost to the Government. By having a revolving fund, when they pay for the service we can see whether it is self-sustaining or not.

The CHAIRMAN. It is simply to save the trouble of coming to Congress and asking annual appropriations; the position may be well taken. Do you charge 30 cents a bale?

Mr. MURPH. Yes.

The CHAIRMAN. There is no limit as to the amount of the existing revolving fund?

Mr. MURPH. The expenses under the revolving fund during the year will be more than \$30,000, and the receipts will be more than \$30,000. The \$30,000 is comparable to the capital of a bank. A bank will handle and loan more money during a year than the \$30,000 capital stocks which it may have, but that is the working fund, and that is what the \$30,000 in this revolving fund means; that is the working capital. As a matter of fact, the costs assessed and the expenses up to date are each more than \$30,000.

The CHAIRMAN. You pay salaries and charge fees?

Mr. MURPH. Yes.

The CHAIRMAN. In that way it takes it out of the power of Congress to control the salaries and expenditures. To what amount will the revolving fund be limited?

Mr. MURPH. We have only \$30,000.

The CHAIRMAN. You are limited to \$30,000?

Mr. MURPH. We can not get any more than that unless Congress gives it to us.

The CHAIRMAN. Is it limited to \$30,000?

Mr. MURPH. Yes; it is limited to that. We can not get any more than that unless Congress gives it to us.

The CHAIRMAN. That is settled?

Mr. MURPH. That is all that we have been allotted for that purpose.

The CHAIRMAN. Allotted by whom; by Congress?

Mr. MURPH. The President allotted \$100,000 for carrying out the amendments to the act. Now, when that came to the department, \$30,000, following the provisions of the act, were put into a revolving fund.

The CHAIRMAN. Of the \$100,000?

Mr. MURPH. \$30,000 of the \$100,000 was put into this revolving fund.

Mr. McLAUGHLIN of Michigan. If you increased your charges you would add to the \$30,000, and then your revolving fund would be increased, would it not?

Mr. MURPH. It would be increased, but it is our purpose, in accordance with the law, to make the charges just sufficient to make

the service self-sustaining. Sometimes, as is the case now, we may have a slight deficit. It may be a month from now——

The CHAIRMAN. Your intentions undoubtedly are good, but years from now somebody else may have control of this work. It is like a snowball; the more you roll it the larger it grows.

Mr. MURPH. I do not think so.

The CHAIRMAN. If you double the fees you double the amount?

Mr. MURPH. The trade would not stand for charging an unreasonable fee, for one thing.

The CHAIRMAN. Thirty or 60 cents a bale is a small matter with a \$200 bale of cotton.

Mr. MURPH. These salaries are under the same restrictions that the salaries in the other branches of the department are under. We can not pay a man more than \$4,500 salary from this revolving fund, under the law. As a matter of fact, we are not paying any man nearly \$4,500.

The CHAIRMAN. What I am interested in knowing is whether there is any limit to this revolving fund.

Mr. MURPH. We have \$30,000 as the capital stock of this fund. Does your question relate to this, namely, whether we can make a profit, whether we can charge so much as to make a profit, and increase this sum from \$30,000 to \$60,000? Probably I should put it this way, that the limit is the cost under the law.

The CHAIRMAN. Now, we have got that far.

Mr. MURPH. We could not charge, under the law, more than the cost of the service.

Mr. HEFLIN. And he charges just enough to make this work self-sustaining.

The CHAIRMAN. You are charging the cost?

Mr. MURPH. We do the best we can to ascertain the actual cost and charge that, and we can not go beyond that.

Mr. HEFLIN. When this law went into effect there was a change made in the number of grades from 21 to 10, and you had to set up a new order entirely?

Mr. MURPH. Yes.

Mr. HEFLIN. The New York Exchange closed its doors temporarily to work out new plans?

Mr. MURPH. Yes.

Mr. HEFLIN. You said there was complaint as to cutting the grades down to 10; that they said it did not furnish them markets for certain grades of cotton?

Mr. MURPH. Yes.

Mr. HEFLIN. We do not agree to that contention in the South, in the cotton-producing States. We hold that seven grades, year in and year out, will cover the entire crop. Ten grades will certainly cover all cotton, and the fact that all the cotton is consumed every year answers the complaint that there is no market for certain grades of cotton. As to the reduction of the number of grades from 21 to 10, the fact is that it deprived speculators of their privilege of tendering bales of unspinnable cotton on contract, to the detriment of the producers of cotton. We found that the practical result of the old system where we used the 21 grades.

The spinner can now get cotton that he can use in his work, but under the 21 grades he could not. The producer was not called upon to fill these contracts. The spinner could not get his contracts filled under it, and therefore it was a gambling business, pure and simple. The producer is now called upon to fill his contracts, and the spinner is supplied.

The CHAIRMAN. What was the loss under that 21-grade system, as against the 10 grades?

Mr. HEFLIN. I do not know. The loss was very heavy.

The CHAIRMAN. Was it \$20 a bale?

Mr. HEFLIN. In some instances it was that much and maybe more.

The CHAIRMAN. To what extent has this corrected it?

Mr. HEFLIN. To the actual crop; these 10 grades practically represent the crop of spinnable cotton, whereas the other stuff, that they accumulated throughout the years and divided up into 21 grades, did not represent the crop; and when they sold that crop and tendered those grades on it, no spinner would take it. He would say, "There is cotton in that which I can not use," and he refused to take it, and they settled the difference in money.

Lastly, we claim that there was no authority to use 21 grades. We set up standard grades. We found that Mr. Brand was permitting them to use 21 grades, but I do not believe yet that he had any authority to permit them to do it. We amended the law and cut the number of grades down to 10; and that is the law to-day. The way they are robbing us to-day is on the difference between the grades.

The CHAIRMAN. Between the grades?

Mr. HEFLIN. Of cotton.

The CHAIRMAN. The manipulation of the various grades?

Mr. HEFLIN. No; the impression goes out that cotton is bringing 40 cents a pound. Maybe a low grade of it is bringing only 20 cents, but the impression goes out that a man is getting 40 cents for his crop. He may be getting 40 cents for the highest grade, 30 cents for another grade, 28 cents for another, and so on down; and we hold now that they are robbing us on the differentials.

The CHAIRMAN. Under the law they are permitted to deliver any grade on any contract?

Mr. HEFLIN. Within the 10 grades.

The CHAIRMAN. By manipulating the price and fixing the price on the lower grades above what it is worth, they deliver a grade that is not desirable and can not be used by the spinner?

Mr. YOUNG. No, sir. The best that these 10 grades can do would be to cover real spinnable cotton. That is what we believe is right. Under the old system, where we had the 21 grades, we discovered that they were accumulating from year to year nonspinnable cotton. For instance, when this amendment was put on this wheat-price guaranty bill last year, I discovered that they were having shipped to Norfolk, Va. (and that is not a cotton section of the country), a lot of this riff-raff stuff that was not spinnable. Then I began to inquire in my own mind, "What is the purpose of that"? These two exchanges, one at New Orleans and one at New York, are the only two exchanges in the Nation that deal not only in spot cotton that passes through their institutions but with cotton that is never intended to be delivered at all, and that is far in excess of the actual cotton that they deal in. But,

while they are dealing in futures that they never expect to deliver, it does have a remarkable effect on the actual spot cotton market.

This delivery, I mean the speculative delivery, does come so often; so that, when the settlement came under the old system, if I had gone in as a future dealer and gotten a bale of that cotton, I never intended to receive or tender any cotton. Under the old system they would say, "We will not settle unless you settle on our basis. We will tender you the cotton that we have a right to tender you under the cotton-futures act under these 21 grades." They would, therefore, call on Norfolk to ship them so many bales of this cotton that is not spinnable and tender them to me. I could not take that cotton because there was no market for it. I was broke if I took it. Therefore, I had to settle on their basis, and it had an effect on the actual spot cotton that the producer was picking, and it battered his market down. Hence, we feel, if you are going to permit these future dealers to operate at all, that you must make them operate in real cotton; and real cotton, as we call it, comes within these 10 grades. On account of the long rainy season, we are now gathering the cotton that ought to have been gathered in October. Cotton grades are very bad. But my contention is, and the contention of the men who produce cotton is, that, because we allow the grades of cotton that represent actual cotton, grown in the fields, these speculative interests in New York ought not to be able to use something that is not valuable with which to pull down real values. That is the situation that we tried to reach, and we have remedied the situation somewhat.

The CHAIRMAN. Your contention is that the cotton shipped to Norfolk was not within the grades?

Mr. YOUNG. Yes; and they were accumulating it there. They had no place to put it in New York. They were accumulating it at Norfolk, so that, if I demanded cotton, they would then get this rotten stuff and tender it to me in order to drive me to a settlement on their terms.

The CHAIRMAN. The cotton was not within the grade specified in the law?

Mr. YOUNG. Not as now specified.

The CHAIRMAN. And the law specifies that no other grades are deliverable on contract?

Mr. YOUNG. Yes.

The CHAIRMAN. That was a violation of the law.

Mr. YOUNG. It is now.

The CHAIRMAN. Before?

Mr. YOUNG. No; because they had this stuff that did come within those 21 grades. They extended those grades over to take in that unspinnable cotton.

The CHAIRMAN. We did not authorize 21 grades.

Mr. YOUNG. That was the construction put upon it, and that is why it was necessary to make this amendment.

Mr. HEFLIN. Mr. Murph, who adopts these differences now between the grades that obtain in the spot market?

Mr. MURPH. The differences between the grades are established by sales in the spot market. Those quotations are made by committees of the spot exchanges under the supervision of representatives of the Bureau of Markets. We have 2 or 3 men in the field, and then we have a man in Washington who goes constantly from one place to

another. He happens to be from your State, Mr. Heflin, this man in Washington who supervises quotations, to see that they are absolutely reliable.

Mr. HEFLIN. How do you find out what is the proper difference between middling fair and good ordinary?

Mr. MURPH. At present good ordinary is not tenderable; but you refer, of course, to the differences generally. Under this plan we get at the actual sales that take place. There are 10 designated bona fide spot markets. The gentlemen of the committee might be interested in this matter. The spot exchanges that are used for this purpose are indicated on this map by red dots. They include Houston, Galveston, Little Rock, Memphis, New Orleans, Dallas, Montgomery, Savannah, Augusta, and Norfolk [indicating on map.] Those 10 markets are what we call bona fide spot markets, designated for the purpose by the Secretary of Agriculture. In each one of those markets there is a committee of the cotton exchange, or the spot exchange, as it is called to differentiate it from the future exchanges. The committee makes up and sends to us and to New York daily figures for the prices of different grades of cotton. We have a man at the present time at New Orleans and one in Memphis and another in Charlotte, and we expect to have two other men in the field who will maintain the closest sort of supervision over this service.

Then, we have a man in the field constantly going from one market to another and going to the primary markets, and ascertaining the prices actually being paid for the different grades of cotton. So we keep such close check on it, to assure ourselves that those quotations are as nearly accurate as it is humanly possible to get them.

Mr. HEFLIN. How does this man get his information or knowledge as to what is the proper difference between the prices of two grades of cotton?

Mr. MURPH. He goes to people who buy and sell the cotton themselves, and gets the information from them. Under the act he has authority now to demand access to their books and records if they will not give him information.

Mr. LEE. It is based on actual sales?

Mr. MURPH. It is based on actual sales.

Mr. HEFLIN. Are the buyer and seller ever consulted as to what the price should be?

Mr. MURPH. They are, and the price quotation service men can ascertain what that price is and—

Mr. HEFLIN. He does not determine what the difference should be but what the difference is?

Mr. MURPH. No, Mr. Heflin; he determines what the prices are at which cotton is actually sold.

Mr. HEFLIN. This paper I have here gives a sample of this. I am a buyer, for instance, and I say, "I will give you 30 cents for that cotton." Then I may turn right around and sell that cotton for 42 cents for this grade, and 38 cents for that, and so on down, and beat the producer out of 10 cents a bale on that transaction. That is done all the time.

What is the remedy? Would not this be a good remedy for the producer's side of it, to have him state the figures himself—what he believes should be the differentials—and get the commissioners of agriculture of the cotton-growing States to set up or establish

what they believe to be proper? That would help those in the trade in fixing the difference, would it not?

Mr. MURPH. Any step that would eventuate in causing sales to be made at certain prices would have an effect on the quotations. In other words, they must quote, under the law, the actual commercial differences. They have got to quote prices at which the cotton is sold. That is in accordance with the law.

Mr. HEFLIN. If the producer and the cotton merchant object to this, they must suggest what they believe would be proper in order to have their opinions avail.

Mr. MURPH. When sales are made at the prices that the producers and the cotton merchants think are proper, those sales will be quoted, because they have become actual sales. As you suggest, anything that has an effect on prices at which sales are actually made must have an effect on the quotations, because the quotations represent actual sales.

Mr. TINCHER. This work is under an amendment to the wheat price guaranty act?

Mr. MURPH. This work of getting differences from the spot market, is carried on under the cotton futures act as unamended. I am coming to a change that has been made which I think will answer your question. Under an amendment to the cotton futures act under the wheat price guaranty act the Secretary of Agriculture was given much greater authority to get information covering the actual sales of cotton, the character of the sales, the prices, the volume of the sales, and anything that has a bearing upon the nature of the sales, to show this reliability, and to show the value that must be placed upon them in determining quotations. This, as I pointed out a moment ago, was for the purpose of getting information particularly back to the producers of cotton, as to the prices at which cotton is being sold. Operating under that authority, we have divided the cotton-producing territory into five districts which you will see roughly indicated by the blue lines [indicating on map]. The headquarters of these districts will be Charlotte, Atlanta, New Orleans, Dallas, and Memphis. It has been very difficult to get men properly equipped for that sort of work, and up to date the offices at Atlanta and Dallas are vacant.

Mr. TINCHER. That is in the wheat-price act?

Mr. MURPH. Yes; that is in the amendment.

Mr. TINCHER. That law expires the 1st of June. Is there any exception in the law, so that this does not expire?

Mr. MURPH. In the opinion of the solicitors of the Agricultural Department and the Treasury Department, the amendments to the cotton futures act are permanent.

Mr. HEFLIN. It was hitched onto this bill, but it is an amendment to the cotton futures act.

Mr. McLAUGHLIN of Michigan. One of the later sections of that act says that this shall expire.

Mr. MURPH. There is a difference of opinion as to whether these acts are permanent, and that is a matter that I wanted to take up with members of the committee at a little later date.

Mr. TINCHER. Would not now be a good time for the committee to arrive at their conclusion as to the permanency of the amendment, in

view of the fact that you are asking for appropriations on the theory that the amendments are permanent?

Mr. HEFLIN. You are a good lawyer, Mr. Tincher; what do you think?

Mr. TINCHER. I think they expire with the act, but I would not want to put my opinion against that of the solicitor of the department. I do not think there is anything in that act which says they shall not expire.

Mr. MURPH. I think I might say, generally, that the opinion of the Solicitor of the Department of Agriculture hinged largely upon this point, that a reading of the amendments to the cotton-futures act, contained in the wheat-price guaranty act, and the reading of section 11 of the wheat-price guaranty act, to which you have referred, raises a doubt as to whether those amendments are permanent. That is, the peculiar language of the amendments themselves, taken in connection with section 11 of the act, raises a doubt as to the permanency of the amendments, and the courts under those conditions would seek to find out the intention of Congress, and for that purpose they would consult the legislative history of the act, and in his opinion the courts would find, if it came to a question of construction in court, that the amendments were permanent.

Mr. HEFLIN. Here was the matter: The cotton-futures act in certain portions was objectionable and we wanted it amended. It was not before the House. The wheat-price bill was. It was an emergency matter. We hooked this amendment onto the wheat-price bill, but it was an amendment to the cotton-futures act. It was passed. I think it is permanent law.

Mr. TINCHER. You think it was a permanent emergency? [Laughter.]

Mr. HEFLIN. The emergency through which we got it on to a permanent law makes it permanent.

Mr. ANDERSON. You got it onto a temporary law, unfortunately.

Mr. MURPH. Shall I proceed outlining the work we are doing under these price-fixing quotations and come back to the other later?

The CHAIRMAN. You referred to Norfolk as a market.

Mr. MURPH. A spot market.

The CHAIRMAN. Is it a real spot market?

Mr. MURPH. Yes, sir.

The CHAIRMAN. I understood Mr. Young to say it was not.

Mr. MURPH. Mr. Young said there was an accumulation there of grades that were deliverable under the old-style contract and that ought not to have been deliverable—and they are not deliverable—under the new contract.

Mr. HEFLIN. Before you get away from that, I said something about the spinners being unable to do business under the old contract. Are the spinners using the exchanges more under the new contract than under the old?

Mr. MURPH. I heard the president of the New York exchange say the other day that the buying interest at this time was overwhelmingly spinners and the trade interests; that is, the spot interests. Does that answer your question?

Mr. HEFLIN. Yes. I wanted to say that they were using the exchange more under the new law than under the old.

Mr. MURPH. It has been recently reported to us that one lot of 2,500 bales that was shipped to New York for delivery on contract was diverted to the mills, showing that the cotton now deliverable on contract is cotton that may be used in the mills.

Mr. TINCHER. May we consider from that that the 10-grade system is working better than the 21-grade system did?

Mr. MURPH. The 10-grade system provides for a contract that is intrinsically more valuable than the old contract.

The CHAIRMAN. It is 12.30 o'clock; at 1.30 o'clock Dr. True and Dean Russell will be here to discuss the extension work informally. If any members are interested, kindly come at 1.30. The committee will take a recess until 2.30.

(Thereupon at 12.30 o'clock p. m. the committee took a recess until 2.30 o'clock p. m.)

AFTER RECESS.

The committee met at 2.30 p. m., pursuant to recess, Hon. Gilbert N. Haugen (chairman) presiding.

The CHAIRMAN. You may proceed, Mr. Murph.

STATEMENT OF MR. DANIEL S. MURPH, SPECIALIST IN COTTON MARKETING AND WAREHOUSING, BUREAU OF MARKETS, DEPARTMENT OF AGRICULTURE—Continued.

Mr. MURPH. Mr. Chairman, when we took a recess this morning I was just coming to the price-quotation service, which we have instituted in accordance with one of the amendments contained in the wheat-price guaranty act. I think I had stated that we have divided the cotton-producing section into five districts, with headquarters at Charlotte, N. C.; Atlanta, Ga.; Memphis, Tenn.; Dallas, Tex.; and New Orleans, La. We have held a number of civil-service examinations in an effort to get suitable men to take charge of the offices at these points, and have done everything we could think of in the effort to get suitable men. It is important that men located at these points for this work shall be conversant with trade methods, the various ways of trading in spot cotton, and be able to judge of the pertinency and value of information they get. To date we lack two men of having enough men of the type we need to put this work into effect in all five of those districts.

We have one man stationed at Charlotte and another stationed at Memphis, and the board of examiners at New Orleans engaged in the classification of cotton have charge of the price-quotation service in that district, so that, as a matter of fact, we have three districts in operation.

A weekly bulletin is issued from each one of these points, and it is given wide distribution, being sent by mail to anyone who requests and certain parts of it are sent by telegraph to anybody who wants it is willing to pay for the telegrams.

We distribute it by mail to producers, and, in fact, anybody who would like to get it. We have a great number of requests from various parts of the country. I have been really surprised at the number of requests we get from parts of the country that presumably would be interested in this quotation service, from the West, for in-

stance, and even the northernmost States have shown great interest in this service.

I have copies of the bulletins here and I thought the committee might be interested in seeing them. I shall not take time to read them. This is a specimen of the bulletins we issue. Here is the last one issued from Charlotte. This is the issue of January 10. I have not one issued from Memphis or New Orleans of that date, because it takes the mail a little longer to get to Washington from those points.

We give information relating to the prices of cotton at various places for various grades and various lengths of staple, and this information is given wide distribution upon the theory that the possession of information as to market conditions is most valuable for any man who is dealing in any particular commodity. In addition to giving this information as to prices, we take advantage of this opportunity to add a pertinent paragraph occasionally with reference to cotton marketing in general. For instance, in this bulletin that I have before me, issued on January 10, we have one paragraph of about eight lines, with reference to the loss of cotton through country damage. We had information that cotton seed of an inferior variety were about to be sold in the Memphis territory, on the theory that that particular variety produces more per acre. We had made investigation previously about that particular sort of cotton and found it very undesirable, and we just inserted in the bulletin a short paragraph warning farmers against it. So a few of those things occur to us as being worth while from the marketing standpoint, and they are inserted as giving timely advice.

I think you wanted me to say something about the permanency of the amendments.

The CHAIRMAN. You have reference to the cotton futures act?

Mr. MURPH. Yes; to those amendments to the cotton futures act. Before I come to that, I may say, with reference to the estimate for this appropriation, that some of the work under the cotton futures act has become more expensive; that is to say, the work in the preparation and distribution of cotton standards, through the increased cost of cotton, the increase in the cost of cartons and other material, the increase in the cost of labor, and except for that condition this estimate could have been considerably smaller than it is now.

Mr. McLAUGHLIN of Michigan. But you charge for those sample exhibits, do you not?

Mr. MURPH. Yes, sir.

Mr. McLAUGHLIN of Michigan. Can you not increase the price to meet the increased cost?

Mr. MURPH. But, Mr. McLaughlin, we can expend the money only once. That is to say, we can buy only a stated number of bales of cotton with a stated amount of money, and when the standards we make up from that quantity of cotton have been exhausted we can not do anything more.

Mr. ANDERSON. That is, what you get for the sale of the samples goes into the Treasury?

Mr. MURPH. Yes, sir.

Mr. ANDERSON. You can only use the appropriation once?

Mr. MURPH. That is right.

The CHAIRMAN. How much is returned to the Treasury?

Mr. MURPH. I have that right here.

The CHAIRMAN. Is it self-supporting?

Mr. MURPH. During the past year, Mr. Chairman, we turned into the Treasury from the sale of miscellaneous and loose cotton and from the sale of cotton standards and revision of standards, \$37,840.71. In addition to that we turned into the Treasury—I have the figures, but I can not lay my hands on them right here—about \$9,000 collected for the determination of disputes. You see, the old form of contract was in force for a while, and we collected about \$9,000 in the determination of disputes under that form.

We expect to turn into the Treasury this year a greater amount from the sale of standards than last year, for the reason we had a very great demand for standards; we are away behind now in furnishing the standards. We have not been able to get enough competent men to make up the standards and to get the cotton fast enough; it is a difficult matter, as you gentlemen understand, to buy the cotton exactly suitable for those standards, and we have not been able to get the material in fast enough and get capable men in large enough numbers to keep up with the orders, so we have got away behind with our applications.

Mr. McLAUGHLIN of Michigan. Receipts from samples sold ought to pay the expense of it, ought it not?

Mr. MURPH. It is difficult to assess the exact cost of the preparation of these standards, because of the way in which the work is done; it is done along with other lines of work and carried on under the cotton-futures act, and sometimes men are employed partly in one line of work and partly in another line.

Mr. McLAUGHLIN of Michigan. Do you fix the price you charge, having in view the idea that the total amount ought to equal the total amount of cost for preparing?

Mr. MURPH. As I say, it is difficult to assess that exactly, but I do not think the total amount of receipts received from the sale of standards, if we should make that division, would cover the entire cost. When the cotton-futures act was first put into administration a price of \$2.50 per box was agreed upon, and lately that has been increased to \$5 per box for standards.

Mr. McLAUGHLIN of Michigan. The thing involves very little money, but I was thinking that, if the Government could break even on something, it would be a good thing.

Mr. MURPH. A set of the standards for grade for upland cotton costs \$100 as against \$50 at the outset; that is to say, the price has doubled. The Bureau of Markets, in its cotton-marketing work, carries on the work of demonstrating the value of the standards. That is carried on in a variety of ways, and we try to carry that on in connection with our marketing and demonstration work, our handling and marketing work, and we feel that whenever we get one of these sets out to the trade that has an educational value; in other words, we feel that the Government and the people through the Government get a return that is not exactly measurable in dollars and cents, when one of these sets gets out into the trade, because people then come to use them more and more and trade on them more and more, and the fact they are traded on, the fact there is accurate information for standards, that there is a Government set of stand-

ards, gives the people as a whole who are interested in the marketing of cotton a return we can not measure in dollars and cents.

Mr. YOUNG. I noticed that the State department of agriculture down at Austin, Tex., has been furnishing to counties who would pay a certain percentage of the salary scale an expert on the matter of cotton grading. They, of course, use these Government samples as a basis of their operations. Has this practice been built up to any extent over the country, over the cotton belt?

Mr. MURPH. That practice is more widespread in Texas than any other State.

Mr. YOUNG. I understand in my own county——

Mr. MURPH (interposing). Where is that?

Mr. YOUNG. Kaufman. I know they operate in some part of the State, and I understood them to say they sent a man to Tyler, Tex.

Mr. MURPH. We have a man there this year.

Mr. YOUNG. Yes. Any farmer who is interested in knowing the grade of his cotton before putting it on the market can go there and have it graded by this expert, so he will know what he is really selling the merchant or local buyer.

Mr. MURPH. Yes, sir.

Mr. YOUNG. It struck me as being a very useful piece of work.

Mr. MURPH. I have in my hand here the progress report on this work in your State and what is being done. Do you happen to know the firm of Parker & Pinkerton, at Tyler?

Mr. YOUNG. Very well.

Mr. MURPH. Are they cotton buyers?

Mr. YOUNG. They are farmers and buyers.

Mr. MURPH. Do you happen to know Mr. Oscar McFarland, president of the Guarantee State Bank?

Mr. YOUNG. Yes.

Mr. MURPH. We have letters from these gentlemen commending the work. Then we have a letter here signed by 30 farmers, in reference to the work, and the substance of this letter from the farmers, which really assesses the value of the work and, of course, from the class of people you have in mind——

Mr. McLAUGHLIN of Michigan (interposing). What is that particular work?

Mr. MURPH. This is cotton marketing. It is connected with the demonstration of the standards and merely suggested itself to Mr. Young in connection with our discussion of the standards. It is not done under the cotton futures act.

Mr. McLAUGHLIN of Michigan. Is a man located at a place to advise with the owners of cotton, the growers, what price they ought to charge those who want to buy it?

Mr. YOUNG. Oh, no. I come to him with five samples of cotton, taken out of five bales, and I want to know what grade these samples are—middling, strict middling, light middling, or what. As a grower, I do not know. It is a peculiar thing, but no growers know what their cotton will grade. This fellow is a technical expert. So, if he says these five bales of cotton grade middling, the farmer at once knows what middling cotton is worth, because those quotations are in practically every town in the cotton belt; nearly every town of any size is getting the market reports. Take my little town of 3,500 peo-

ple; we raise a local purse and hire telegraphers, who go to that office at 9 o'clock in the morning, and we get all the reports from New Orleans, New York, and Liverpool. In fact, we have got the whole market every minute in the day coming into this little office. Any farmer can walk up there and see that the quotation on middling, for instance, is 30 or 40 cents, as the case might be. Now, the question is, What have I got to sell? He does not know what his cotton grades. The expert says that bale of cotton is middling. He sees that report and knows what that cotton is worth; so he is trading on an equal basis with the fellow who is buying that cotton.

Mr. McLAUGHLIN of Michigan. I may not be very liberal, but how far should the Federal Government go with that work?

Mr. YOUNG. That is local; that is State.

Mr. MURPH. I might make this explanation. The work, from the standpoint of the Bureau of Markets, is a demonstrational and educational work rather than a work of service. That is to say, the Bureau of Markets, from its investigations, has found that conditions prevailing in the cotton marketing business, especially in the markets used by producers, are such that the producer in so many instances never gets the value of his cotton for the reason that he does not know the grade, the staple and the character of it, and does not know its value. As Mr. Young has just pointed out, many farmers do not know the grade, do not know how to staple cotton, do not know how to get the length of staple. There is a difference of about 45 cents now between cottons of the same grade merely on account of the different lengths of staple. That is an extreme case, but there is a difference of 2 cents, 5 cents, 6 cents, 10 cents, 20 cents, on account of the different lengths of staple. Now it is a highly technical proposition to class cotton, that is, to grade it and to staple it, and very few farmers can do it. Our investigations, covering the collection of actual samples and figures, show, for instance, in the same market on the same day cotton of the same grade and value sold at \$15 difference per bale, and at that time cotton was bringing about 12 cents per pound—cotton actually of the same value being sold in the same market on the same day by two different persons at a difference in price of about \$15.

Mr. McLAUGHLIN of Michigan. I can understand that condition, and it would be very helpful to the producer of cotton if he had that knowledge. I was wondering how much the Department of Agriculture was going to help him, and how much it was the duty of the Federal Government to assist the owners of property to know the value of it, so as to put a proper price on it.

Mr. MURPH. I was coming to that, Mr. McLaughlin, and I felt I ought to make some little statement about general conditions, so that members of the committee might appreciate the significance of this work. As I say, from the standpoint of the Bureau of Markets, the work is educational and demonstrational. The Bureau of Markets goes into a community and joins in this work for the purpose of showing the farmers themselves what they can do themselves. It is a very recent work on the part of the Bureau of Markets, and when we feel we have made a sufficient demonstration in one community we will just move along to another community. It does not become permanent in any community. We are showing the way, that is all;

then we help the farmers with their associations, show them what they can do, and we put a man there just for that purpose for a while.

Mr. McLAUGHLIN of Michigan. Would it not be better and more in keeping with our way of doing business if you would advise with and instruct men to be employed by the State to go out and do that work instead of carrying this to individuals all over the State? That is quite an undertaking on the part of the Federal Government.

Mr. MURPH. We do not undertake to carry the work to individuals. We only have about 35 such stations throughout the cotton belt; and, as I say, it is for educational and demonstrational purposes, and the valuable information that we get from one of these stations becomes available for other stations, and when we feel we have completed the work in one section we move on to another section.

In the State of Texas, at some of these points, we pay about \$250 of the classer's salary; at other points only \$1. The farmers themselves pay the great bulk of it.

Mr. McLAUGHLIN of Michigan. That is educational, then, at the place where you are doing the work; and after you do the work there you do not go back there, but you go to some other place, and leave them to take advantage, if they are able, of the instruction you have given them?

Mr. MURPH. Yes, sir; that is the theory on which we have approached it, and that is the limitation which we set about it.

The question would naturally arise as to the way in which the service was paid for finally, and it eventually gets back to this, that the individual farmers themselves really pay for the service they get through the local associations. The local associations, for instance in Texas, will make a charge of about 25 cents a bale for each bale of cotton this association handles, so after all the farmer who gets the service pays for it through his association.

Mr. McLAUGHLIN of Michigan. The association collects the money from the farmers and pays the expenses of your men?

Mr. MURPH. Yes, sir; we have a joint agreement with them; they are to pay them so much and we pay so much, and then the State extension department, as you suggested a while ago, the Agricultural College usually pays a small part of it. The bulk of it is paid, however, by the growers themselves.

I think there is nothing more I care to add here unless there are some questions on this appropriation.

WEDNESDAY, JANUARY 14, 1920.

**STATEMENT OF MR. GEORGE LIVINGSTON, ACTING CHIEF OF THE
BUREAU OF MARKETS, DEPARTMENT OF AGRICULTURE—Continued.**

Mr. LIVINGSTON. If it is satisfactory to the committee, Mr. Chairman, we will take up item 96, on page 258, "To enable the Secretary of Agriculture to carry into effect the provisions of the United States grain-standards act," and so forth.

There is no increase requested in this item, but we are resubmitting a request for an amendment to section 6. You will recall that we submitted the same request last year.

Mr. RUBEY. And it went out on a point of order.

Mr. LIVINGSTON. It went out on a point of order. As I remember it, one change in section 6 was approved by the committee, and went out on a point of order on the floor, and the other change was not approved.

Mr. McLAUGHLIN of Michigan. Was not one put in in the Senate and stricken out in conference?

Mr. LIVINGSTON. Not that I recall. The requests for the changes, I think, are set forth very fully and concisely in the note appended to this item, and with the approval of the committee I would like to insert that note in the record of this hearing in order that it might appear in connection with it.

Mr. McLAUGHLIN of Michigan. Do you mean you want to reprint this note at the foot of page 96?

Mr. LIVINGSTON. Yes; in connection with this item in the hearings. It makes no difference, however, if the committee does not desire to do that.

The CHAIRMAN. You brought this up last year?

Mr. LIVINGSTON. The first amendment, Mr. Chairman, provides authority for the Secretary to entertain appeals on any grain that has been inspected by a licensed inspector. At the present time the Secretary of Agriculture is restricted to such grain as passes into interstate commerce. For instance, at the present time suppose a car of wheat originates at this point (indicating on map), goes to Chicago, and is inspected by a licensed inspector; an appeal may not be taken to the Secretary of Agriculture; but if the car goes to Indianapolis—if it crosses the State line—an appeal may be taken to the Secretary. Now, we have a number of requests from individuals, from boards of trade, from chambers of commerce, asking us to entertain these appeals.

Mr. McLAUGHLIN of Michigan. The first case you cited there of a car of grain shipped from a point in central Illinois into Chicago is of a transaction between citizens of the State of Illinois.

Mr. LIVINGSTON. Yes; but if the grain—

Mr. McLAUGHLIN of Michigan. Do you think it is a function of the Federal Government to take part in disputes between citizens of a State?

Mr. LIVINGSTON. Yes; Mr. McLaughlin, when the standards have been established by the Federal Government, and the integrity of those standards must be maintained, and when the grain in question is inspected by an inspector licensed by the Federal Government.

Mr. McLAUGHLIN of Michigan. When that grain reaches Chicago it may not go any farther, or it may be shipped out into interstate commerce.

Mr. LIVINGSTON. It may be shipped out into interstate commerce.

Mr. McLAUGHLIN of Michigan. If it enters interstate commerce it may be inspected; and then, if a dispute arises, it can be determined by an appeal?

Mr. LIVINGSTON. Yes.

Mr. McLAUGHLIN of Michigan. Is not that enough?

Mr. LIVINGSTON. No; it is not.

Mr. RUBEX. It does not help the producer, where the grain originates; and, as I understand it, the producers and sellers of wheat are urging this action, are they not?

Mr. LIVINGSTON. Yes; in order that they may be protected in their local markets.

Mr. McLAUGHLIN of Michigan. I know they are, but is it incumbent upon the Federal Government to do everything, entirely within a State, simply because it would be convenient and agreeable to those people?

Mr. RUBEX. How else can it be done? Congress is exercising a constitutional authority to fix standards of grain.

Mr. LIVINGSTON. Yes.

Mr. TINCHER. If they fix them they ought to enforce them.

Mr. RUBEX. Nobody else can do it but the Federal Government.

Mr. LIVINGSTON. We look upon it as a step towards maintaining the integrity of the United States standards. These inspectors are all licensed by the Federal Government. They inspect grain and apply the standards of the Federal Government, and we would like an opportunity to check up on all their inspections. It will not increase the cost of the service at all, because we take samples for supervision purposes, in addition to samples taken for interstate appeal. We consider it a convenient method of supervising the work of the inspectors.

Mr. YOUNG. Do the producers of wheat want this?

Mr. LIVINGSTON. Yes.

Mr. YOUNG. Do the wheat growers themselves want this?

Mr. LIVINGSTON. Yes; of course, the great number of producers of wheat do not ship wheat, but those who do, want it. Let me read a very brief statement from a letter on this point. This is from the Toledo Produce Exchange. [Reading:]

The ruling of your department saying no appeal to the Government officials can be taken on intrastate shipments is considered as "class legislation" by our directors. That Ohio shippers to Toledo or other Ohio markets can not have the same privilege that is accorded their shipments to markets outside the State is considered unfair to the Ohio markets. The local United States office is deprived of fees which would otherwise be taken in, in case of appeal by intrastate shippers.

May we hear from you as to why can not the ban be lifted and the appeal rule be the same in both intrastate and interstate shipments.

To emphasize the point I made a while ago—Toledo is an important grain market. If a car originating in Ohio goes to Toledo, no appeal may be taken by the shipper, although the grain has been inspected by an inspector licensed by the Federal Government according to the standards promulgated by the Federal Government.

Mr. McLAUGHLIN of Michigan. Why should the Government inspector inspect wheat where the transaction is entirely within a State?

Mr. LIVINGSTON. Dealers in grain know no State lines—

Mr. McLAUGHLIN of Michigan. I beg your pardon; you have just stated that the dealing is entirely within the State.

Mr. LIVINGSTON. I was referring to the nature of the transaction. Let me illustrate further. If this car of grain had originated the same number of miles on this side of Toledo (indicating on map), this man would have had a right to an appeal.

Mr. McLAUGHLIN of Michigan. That is true; that often determines the duty of the Federal Government in a thousand and one matters.

Mr. LIVINGSTON. Not the standards; not where the Constitution gives the right to the Federal Government to fix standards of grain.

Mr. McLAUGHLIN of Michigan. I do not know why.

Mr. LIVINGSTON. Let me give you an illustration of what might happen. We have an inspector in Toledo who is licensed under the grain standards act, who inspects grain according to the standards promulgated by the Federal department, and part of the grain that originates in Ohio comes up to him for inspection. He may grade it correctly or incorrectly. If he grades it incorrectly he is throwing the official standards of the United States into disrepute; yet, because of this provision in section 6, the parties at interest, the buyer and seller, can not have the information from the Federal Government as to whether or not that inspector has properly graded that lot of grain.

Mr. McLAUGHLIN of Michigan. Here is a case that is not entirely analagous: We were speaking yesterday of these inspections of perishable products at the points of destination. The law provides that only products shipped in interstate commerce shall be so inspected, with the idea that the Federal Government has nothing to do with the commerce within the States. Is it, then, the duty or the function of the Federal Government to interfere, or can it, with propriety, interfere in a quarrel or dispute as to business matters that concern the people of the States alone?

There is another reason why that kind of inspection should be confined to interstate shipments, because the act makes the certificate issued by the inspector prima facie evidence in a court, and that can only be in a United States court. We can not pass a statute that will make a certificate of a Federal inspector prima facie evidence in a State court. So that it would seem to me that inspection of grain by the Federal Government for any purpose, where the transaction is entirely between citizens of the State, is going beyond the functions of the Federal Government. You say the inspector at Toledo does inspect?

Mr. LIVINGSTON. Yes.

Mr. McLAUGHLIN of Michigan. I question the propriety of having him inspect it until it is destined for, or is in, interstate commerce.

Mr. LIVINGSTON. Mr. McLaughlin, the inspector is merely licensed by the Federal Government.

Mr. McLAUGHLIN of Michigan. I know that.

Mr. LIVINGSTON. He inspects all grain that is tendered to him.

The CHAIRMAN. Is he paid by the State or by the municipality?

Mr. LIVINGSTON. Frequently he is paid by the board of trade or other similar organization.

The CHAIRMAN. He is not paid by the Federal Government?

Mr. LIVINGSTON. No; he receives no compensation from the Federal Government.

Mr. McLAUGHLIN of Michigan. You say the dealers there, or those concerned in the transaction there in Ohio—or Illinois, according to your first illustration—would like to have this done?

Mr. LIVINGSTON. Yes.

Mr. McLAUGHLIN of Michigan. That does not cut any figure whatever. There are a thousand and one things that they would like to have the Federal Government do for them that it has no right to do.

Mr. LIVINGSTON. Coming back to my original point regardless of whether or not these people want to have this done, it does seem to us that it is perfectly feasible for the Federal Government to take that step and protect its standards, as it will not involve any increased cost and will at the same time render a service which people want. In other words, our standards, it seems to me, must be protected.

Mr. McLAUGHLIN of Michigan. There are other members of the committee who know a great deal more about this grain-standards law than I do and about these operations, but it just occurs to me that the Federal Government is going a long way if it is going to inspect products involved in a transaction entirely within State lines, both parties to the transaction being citizens of one State. There is practically no limit beyond which you can not go if that is entered upon.

Mr. LIVINGSTON. This is a permissive measure so far as the appeal provisions of law are concerned. No one is required to take an appeal. The appeal is taken at the request of somebody in interest.

Mr. McLAUGHLIN of Michigan. That is my suggestion. I am not making an objection, because I think perhaps I may be wrong about it—perhaps do not know enough about it; but my objection goes to the inspection of this intrastate business at all.

Mr. LIVINGSTON. Licensed inspectors could not handle the grain-inspection business at all unless they were permitted to inspect intrastate as well as interstate grain, because this would involve setting up duplicate inspection machinery in every place of inspection.

Mr. McLAUGHLIN of Michigan. Why duplicate?

Mr. LIVINGSTON. Because the grain at Chicago and many other markets is largely intrastate grain, which later crosses States lines and becomes interstate grain. If the inspector who is licensed under the grain-standards act is precluded from inspecting grain that does not cross a State line it will mean that some inspectors must be available for inspecting that grain which comes from within the State. Therefore it would mean a duplicate equipment for inspection—one inspection to be made for grain that crosses the State lines and another to inspect grain that does not cross State lines.

Mr. McLAUGHLIN of Michigan. That would be a State matter. Let them do it if they wish.

Mr. LIVINGSTON. If you will remember, these inspectors are not paid by the Federal Government. These men are employed by the chambers of commerce or by the State, and in many cases they operate as private individuals, on a fee basis; so that if we were to preclude or prevent the licensed inspectors from inspecting grain that does not cross State lines, we would immediately get into a great amount of difficulty, because it would necessitate, as I have said, two inspection departments in every important grain market in the country.

Mr. McLAUGHLIN of Michigan. Carrying that out to the logical conclusion, every shipment of grain from one point to another, whether the distance is 1 mile or 100 miles, might be inspected by a Federal inspector?

Mr. LIVINGSTON. Yes.

Mr. McLAUGHLIN of Michigan. My idea is that the Government has no right to do that. Suppose some man in your State wants the Government to build a house for him. Carrying your theory to the logical conclusion, you would say that we ought to do that.

Mr. TINCER. Is there not about as much demand among producers for the repeal of the act as there is from the other side?

Mr. LIVINGSTON. There used to be, but there is not now.

The CHAIRMAN. This is to provide for an appeal in the case of all grain shipped in intrastate as well as in interstate commerce. It was finally determined that it should be limited to interstate shipments; now the whole fight is coming up again, whether it shall be extended to intrastate traffic. I fully agree with the proposition. I tried to have it incorporated at that time. In my opinion it would be a good thing to incorporate it here.

Mr. LIVINGSTON. It involves no expense to the Federal Government.

The CHAIRMAN. There is a charge for the appeal?

Mr. LIVINGSTON. Yes; \$3 per car.

The CHAIRMAN. You say that it involves no expense to the Government, but that it is merely a matter of convenience to the people concerned?

Mr. LIVINGSTON. Yes.

Mr. TINCER. The Government has fixed standards for grain. If I am shipping wheat, and it is intrastate, and I am not satisfied with the grading, I have no right to appeal to the Department of Agriculture because it is altogether within State lines, and the appeal that I am denied is on a subject on which the Federal Congress has legislated.

Mr. LIVINGSTON. Yes; according to standards fixed by the Federal Government, upon inspection by a man that is licensed by that Government. The fact that a man ships the grain within a State ought not to deprive him, if he thinks he is wronged, of an appeal.

Mr. McLAUGHLIN of Michigan. That is saying that you have started a law to interfere with local transactions and therefore you must carry it on to the end.

Mr. LIVINGSTON. All grain arriving at these markets where there is a licensed inspector is inspected by a licensed inspector.

Mr. McLAUGHLIN of Michigan. Whether it is intrastate or interstate?

Mr. LIVINGSTON. Yes.

Mr. McLAUGHLIN of Michigan. You have started a process that may be wrong, and is wrong according to my notion, and therefore you would carry it out to the end?

Mr. LIVINGSTON. We believe that it is legal in all respects. When we took up the question of issuing licenses, the solicitor of the department rendered an opinion that a man might have a license to inspect grain moving in interstate commerce, and that he might at the same time act as an inspector to inspect grain that did not go into interstate commerce. But the point is that almost all States have adopted the Federal standards as State standards, and all the transactions in grain throughout the country are based on the Federal standards, regardless of whether the grain is shipped in interstate commerce or not.

Mr. RUBEY. I doubt your ability to get this through. We may pass it through the committee, but any one man on the floor of the House can object to it, and no doubt somebody will object to it. In the last Congress the second part of your proposition here was reported by the committee, but it was objected to by a Member of the House and went out on a point of order; although, so far as I am concerned, I shall be glad to recommend it. At the same time, however, I think the best thing for you to do is to prepare a bill covering this amendment and have it introduced—let the committee report it to the House—and seek these changes by legislation in a separate measure.

Mr. LIVINGSTON. That, of course, is a question for the committee to decide.

Mr. RUBEY. I think that is the only way you are ever going to get the change made, and there is no doubt in my mind but what it ought to be made. For instance, take the second part of your proposition. You have had 14,000 appeals, I believe it is, which have been entertained, and in only 1 case out of the 14,000 have the parties asked for a hearing or been granted a hearing. Of course, if they have asked for it they have been granted it; so that that shows absolutely the fallacy of this granting of a hearing on the proposition of the grading of grain. Notwithstanding that fact was impressed upon the Member who made the objection last year upon the floor of the House, he could not be convinced and continued his objection. I do not see how it is possible for you to get this through the House by legislation on this appropriation bill.

Mr. LIVINGSTON. The point of order, I think, was raised by a gentleman who misunderstood the matter.

Mr. RUBEY. Certainly; but you could not make him understand.

Mr. LIVINGSTON. He thought that it was a hearing on the establishment of standards.

Mr. RUBEY. Certainly; and you could not make him believe otherwise.

Mr. ANDERSON. The original grain-standards act was passed apparently on the theory that you could only apply those standards to grain moving in interstate commerce. Is it the opinion of the Solicitor's office that we should now modify that so as to make the standards apply to grain that moves in intrastate commerce?

Mr. LIVINGSTON. Do you mean make them applicable also to the grain?

Mr. ANDERSON. Yes.

Mr. LIVINGSTON. I am not prepared to say. Do you refer to the question whether the act should be based on the weights and standards measure rather than the interstate commerce clause?

Mr. ANDERSON. Yes.

Mr. LIVINGSTON. I am not prepared to answer for the Solicitor on that point.

Mr. ANDERSON. It seems to me that is a point that has got to be determined before this proposed new language is adopted or rejected.

Mr. LIVINGSTON. This is rather putting it on the basis of protecting the integrity of the standards.

Mr. RUBEY. I doubt very much whether or not we can pass that kind of legislation; that is, whether, after it is passed, it would be

considered constitutional or not; because we have no authority except over grain that goes into interstate commerce. At the same time, by a separate bill we might be able to find some way of passing that sort of legislation.

Mr. LIVINGSTON. I think the point was, Gov. Rubey, that, whereas this grain standards act was based on the interstate commerce clause of the Constitution, is it not possible to base it on the weights and measures feature rather than on the interstate commerce clause? I shall be very glad to refer that question to the solicitor, Mr. Anderson, and get his opinion on that.

Mr. ANDERSON. Of course, I appreciate the viewpoint which suggests that this appeal is perhaps a matter of supervision; but I think that is a pretty far-fetched proposition, because, of course, it does not amount to anything unless you have the authority requiring the intrastate grain to be graded in accordance with the Federal standards. The fact that you have an appeal does not amount to anything except that, as Mr. McLaughlin suggested, it is another wedge into the local control over local affairs.

Mr. LIVINGSTON. Almost all the States have adopted the Federal standards and almost all grain passing in either interstate or intrastate traffic passes this inspection.

Mr. ANDERSON. What States have adopted State inspection?

Mr. LIVINGSTON. Almost none.

Mr. ANDERSON. I understand that Minnesota intends to abandon Federal grades.

Mr. LIVINGSTON. I understand they have made that statement a number of times, but thus far they have taken no action.

Mr. ANDERSON. My impression is that they had some legislation at the last session that authorized the creation of State standards and their enforcement so far as intrastate grain is concerned, and my understanding was that those standards would probably be made effective with the next crop.

Mr. HEFLIN. Do you mean they are going to set up different standards from the Federal standards?

Mr. ANDERSON. Yes; I think so.

Mr. LIVINGSTON. As I said at the start, I think these notes that are appended to the item in the bill give a very definite and very brief summary of the points that led us to make the recommendation.

Mr. ANDERSON. So far as I am concerned, I will resolve all doubts about the proposition by saying that, so far as I am concerned, there will be no amendment to this act until we get some standards that will be satisfactory.

Mr. LIVINGSTON. I take it that the standards are not satisfactory to you, then?

Mr. ANDERSON. They certainly are not.

Mr. LIVINGSTON. We have had no complaints about them since the price-fixing matters have been adjusted.

Mr. ANDERSON. We have complained about them until we have got tired of complaining, and we are going to substitute standards of our own.

Mr. LIVINGSTON. There has been no complaint since the establishment of the new differentials between grades of wheat.

Mr. ANDERSON. That was not until after all the wheat was out of the hands of the producer that it was possible to get cars to take away.

Mr. LIVINGSTON. No.

Mr. ANDERSON. Why was not that done?

Mr. LIVINGSTON. That is out of our jurisdiction.

The CHAIRMAN. In regard to the grain regulation, do you recall the amount the spread was modified?

Mr. ANDERSON. I was present at the meetings with the Grain Corporation. My recollection is that at that time the spread ran as high as 42 cents between the No. 1 and No. 4. Probably it was not as high as that, but it was very great. I can look it up and put it in the record. I do not recall the spreads that were arranged there, but my recollection is that the total spread between No. 1 and No. 4 was not over 10 cents.

Mr. LIVINGSTON. I think it was 12 cents, probably.

Mr. TINCHER. The change that you made made a difference of 28 cents a bushel to the producer in my State on the No. 4 winter wheat. He got that much more for his wheat. Was that change made in the department?

Mr. LIVINGSTON. Not by our department. That is a matter that comes entirely under the jurisdiction of the Grain Corporation.

Mr. TINCHER. That was made 90 days after they commenced—

Mr. YOUNG. I want the record to be made straight, to the effect that the Department of Agriculture did not have anything to do with that.

Mr. TINCHER. Why did not the Department of Agriculture have something to do with it?

Mr. YOUNG. The price-fixing committee of the Grain Corporation dealt with that whole subject.

Mr. TINCHER. They had no right to deal with the grading of this wheat. That came from the Department of Agriculture, from the Bureau of Markets.

Mr. LIVINGSTON. They do not deal with grading.

Mr. TINCHER. The standardizing.

Mr. LIVINGSTON. But they fixed the prices based on the grades. The grades were established before the price was fixed, and after the grades had been established the price was fixed, which was recently modified.

Mr. YOUNG. The point I want to make is that it would be unfortunate to have it go out to the producers that in this country, where we are seeking to establish a set of grades that will take care of the producer in order that the stuff may be profitable to raise, this was done through the Department of Agriculture, when, as I understand, the department has had absolutely nothing to do with it except to establish these grades. The department had nothing to do with the price-fixing part of it, and that is what the farmers complain about. We have had the same question on the cotton. The point is that your Kansas department said that there had been too big a spread between certain classes and grades. The department had nothing to do with the price fixing.

Mr. ANDERSON. There is no use going into that here, but the point remains that the character of grades and the character that resulted

from it was greatly modified by the price fixing, because under normal conditions, if a good quality of wheat was graded down because of foreign matter in it, the competition in the central market would, nevertheless, get the producer a reasonable price for the quality of the wheat they could sell, while under the fixed-price system, if the wheat was graded down, although it was a good quality of wheat, it got the price of that grade and that is all.

Mr. LIVINGSTON. That would be true, regardless of what grades were employed. You have stated the case, I think, very clearly.

Mr. TINCHER. Your theory, then, is that there was nothing that the department here could have done under your authority of law to have protected the producer against the injustice of that spread?

Mr. LIVINGSTON. I think not, sir.

Mr. TINCHER. Then I do not think we ought to have the department. If it could not take care of an emergency of that kind, where you permitted wheat to be graded down, whether it had one grain of rye or 100 grains; when your grade that you fixed permitted that to cost a man 30 cents a bushel on his wheat—and you lay that all onto the Grain Corporation—then I can not see how you can ever hope to be of any service to the people of the United States.

Mr. LIVINGSTON. My point is this, that if we had modified the grades under the law the price differentials would be changed to conform to the grades. As a matter of fact, we did change the grades at one time, and the price was changed to conform to the new grades. That would have resulted if we had made a further attempt to change the grades. You remember one year they had 4 cents premium on dark winters and on dark hard, and after the grades were changed the premium was reduced to 2 cents.

Mr. TINCHER. You think, then, that if you had changed the grades last spring, as I tried to get the department to do, the Grain Corporation would have been able to go ahead in some other way and turn the same back to the producer?

Mr. LIVINGSTON. Yes; they would have modified the differential between grades.

Mr. TINCHER. If you had changed it and made that right, they could not have blamed you for it; but they are blaming you for it.

Mr. LIVINGSTON. That is unfortunate.

Mr. TINCHER. If you had changed your grades then, as I told you to [laughter], they could not have blamed you.

Mr. LIVINGSTON. Under normal conditions we think these grades are all right.

Mr. TINCHER. If the conditions are normal?

Mr. LIVINGSTON. Since these price differentials have been changed we have had no complaint about the grades, and the farmer is getting 50 cents or a dollar more than the Grain Corporation price. Just as soon as the price went above the guaranteed price people quit making complaints against the standards.

Mr. YOUNG. I do not know about the grain situation; there may be something that we ought to do, but I do not know what it is; but we have a commodity in my country, the cotton crop, for which we have established standards. They make a spread between certain grades of 500 to 700 points. The Government has nothing to do with it, and I do not know where the defect shows, but it is something

that ought to be attended to. The trade has done it. We know that we are being robbed. That is done by the trade; but when a Government agency engages in that practice it is a different thing.

Mr. RUBEX. To what Government agency do you refer?

Mr. YOUNG. The point to which I am addressing myself is that we have that trouble with the wheat; that is, where the Government has taken charge of the wheat. That spread, you gentlemen say, is too big. I have no reason to dispute that. We have that same condition, probably to a worse extent, in the cotton trade, where we have established standards, and where the trade has gone in there and made that spread. That is wholly unjustifiable, and we were held up on that cotton and got \$25 to \$50 a bale less. We have sustained that loss. How are you going to get at that?

The CHAIRMAN. Yes, but in this case that was made by a Government agency.

Mr. YOUNG. Here is one thing that the Government has taken charge of, and it seems that you still have the defect. Here is another commodity that the Government has not taken charge of, except to establish standards, and we have that complaint, to a greater extent, that the producer is being held up. How are you going to reach it? I should think that all the producer ought to want—all that I as a producer would want—is a fair price. I do not want to be held up and have the value of my crop taken from me by a monopoly and not let me get the value that the market would justify me in getting. There is a defect there. How are we to remedy it?

Mr. TINCHER. Here is one thing about grades. I do not know if it affected any other locality. For instance, it took off from wheat and made an off-grade of wheat for rye and foreign matter the same as for dirt. The millers did not do that, but that was according to the grades fixed.

Mr. YOUNG. Let us stop there a moment. I am interested in that, too. Of course rye is not wheat, but under the present system it is treated the same as though it were gravel—absolutely worthless. Is there a method by which we can make the trade pay for rye; because rye has value, even though it is not wheat?

Mr. TINCHER. The miller does not object to a certain percentage of rye. He does not want his flour to have more than a certain percentage of rye, but he does not want 10 per cent of dirt. The highest percentage of rye they would allow was about 2 per cent. What is that now?

Mr. LIVINGSTON. I understand your question to be, What is the maximum percentage of rye permitted in each grade of the Federal standards for wheat as they now stand? Grade No. 1 permits 1 per cent; grade No. 2, 2 per cent; grade No. 3, 3 per cent; grade No. 4, 5 per cent; grade No. 5, 7 per cent.

Mr. TINCHER. What is the highest grade?

Mr. LIVINGSTON. By the highest grade I presume you mean the highest numerical grade, namely, No. 5, which, of course, includes the poorest wheat covered by a numerical grade, from the standpoint of quality and condition. The maximum of rye content now permitted in grade No. 5 is 7 per cent.

Mr. ANDERSON. Seven per cent?

Mr. LIVINGSTON. Yes; 7 per cent.

Mr. TINCHER. That has been changed. What was it at first?

Mr. LIVINGSTON. I do not know what it was at first; 6 per cent, I think.

Mr. TINCHER. No; I think you will find it was 4, though I may be mistaken in that. But that was still too low, as far as that is concerned. No man who owns a mill will tell you that 10 per cent makes any difference. As a matter of fact, they do not make any difference under 16.

Mr. YOUNG. Suppose it has got 10 per cent rye and the miller does not recognize any difference, but goes ahead and sells on the basis that there is no rye in it?

Mr. TINCHER. He will tell you that it does no harm to the flour. The flour is just as good for every purpose.

Mr. LIVINGSTON. What is your suggestion?

Mr. TINCHER. My suggestion is that you discriminate between rye and dirt in the grades.

Mr. LIVINGSTON. We discriminate now between rye and dirt, but the miller is not going to pay wheat prices for rye. You can not regulate commercial transactions by establishing grades.

Mr. TINCHER. But at that time the price of rye was higher than the price of wheat, and there was no objection on that ground. You say now that the farmer gets 50 cents more than the guaranteed price for his wheat?

Mr. LIVINGSTON. Yes.

Mr. TINCHER. The Department of Agriculture can not take credit for that any more than Congress can.

Mr. LIVINGSTON. We do not take any credit for it.

Mr. TINCHER. The guaranteed price of wheat happens to be lower than the market price of wheat.

Mr. LIVINGSTON. I cited that to show that when the market price went above the fixed price and the fixed price played no part, then the matter of fixed grades was forgotten.

Mr. TINCHER. Yes; but the price was fixed too high. When the farmer is losing 25 or 30 cents on every bushel of wheat, it ought not to be forgotten.

Is it not a fact that the export of wheat was not opened up while the farmer had the wheat?

Mr. LIVINGSTON. I do not know about that.

Mr. TINCHER. And the export was opened up after the speculators got the wheat?

Mr. LIVINGSTON. I do not know.

Mr. TINCHER. I just wanted to know what you thought about it.

The CHAIRMAN. One department should know about the other departments, and especially—

Mr. RUBEN. But the Department of Agriculture does not want to take the responsibility of telling you or of telling Congress why the Grain Corporation did this, that, or the other. The thing for us to do, if we want that information, is to get the information from the people responsible, from the Grain Corporation.

Mr. McLAUGHLIN of Michigan. That satisfies me. If the Department of Agriculture says it has no authority over the matter, let it be put in the record. If there is any fault, and the Department of Agriculture had nothing to do with it, then you ought not to blame it on the Department of Agriculture.

The CHAIRMAN. They should have done something.

Mr. YOUNG. I think it would be very unfortunate for the Department of Agriculture if the records should show that the department had anything to do with price fixing. This will prejudice the farmers of the country against the department. The farmers now must have faith in the Department of Agriculture, and, whatever the Grain Corporation may have been guilty of, this record ought not to show that the department is responsible for it.

Mr. McLAUGHLIN of Michigan. It ought to show that the department is not responsible for it.

Mr. YOUNG. That is what it ought to show and what I think it will show. The Department of Agriculture has had nothing to do with the fixing of prices.

Mr. HARRISON. We have been criticized many times for the difference in prices between grades—a matter for which we were in no wise responsible.

The CHAIRMAN. The grades are in a degree responsible.

Mr. HARRISON. The point is that no matter what the prices were the Grain Corporation was the price-fixing agency and it could fix whatever differences it pleased, so long as it complied with the provisions of the act under which the guaranty was made.

Mr. ANDERSON. That is not quite true. The Grain Corporation had no authority to fix any prices at all. They could not regulate the prices at all except to the point of the guaranteed price. That is all the authority they had. They had no authority to fix anything above the guaranteed price. They did assume, however, in view of the situation that existed, to establish tentative relations between the grades; that is, the tentative price of bread, which they were able at least partially to enforce. So far as I am concerned, I do not absolve the Department of Agriculture altogether from all blame with respect to the wheat situation, not by a jugful.

Mr. HARRISON. As I recall it, the law prescribed No. 1 northern as the basis—

Mr. LIVINGSTON. It did.

Mr. ANDERSON. And below the price fixed by the act. The Grain Corporation could fix these differentials, and it did fix them.

Mr. LIVINGSTON. Yes.

Mr. ANDERSON. But above that price—and the price has been above that price most of the time—those grades were only effective in so far as the Grain Corporation was able by one method and another to make them effective. It had no real authority to do it.

Mr. LIVINGSTON. Then I do not see your point, why the Department of Agriculture should assume responsibility for it.

Mr. ANDERSON. I do not say that you should assume responsibility for it, but when you say that the grades had nothing to do with the resulting injustice to the farmer I do not agree with you.

Mr. RUBEY. The point he makes is this, that, whatever the grades may have been, no matter what the grades may have been which were established, if some other grades had been established, the same conditions would have prevailed.

Mr. ANDERSON. That is nonsense, because, if it is true we might just as well do away with the grades altogether.

Mr. RUBEY. No; it is not nonsense.

Mr. ANDERSON. If the grades have nothing to do with seeing that the farmers get a fair price, we might just as well abolish the grades and abolish the Department of Agriculture.

Mr. RUBEY. No; it is not nonsense. The Grain Corporation fixed certain differentials between these grades, and, if the grades had been some other grades, those same differentials would have existed; those same variations would have existed.

Mr. ANDERSON. Yes; but it makes some difference, when the basis is a fixed price and when good wheat falls in grade No. 4 when it ought to fall in grade No. 2. That is the point that I am making.

Mr. RUBEY. That comes under the question whether you agree with these grades or do not agree with them. You do not agree that these grades are right, and you have a right, of course, to your opinion. A great many other people think they are all right.

Mr. TINCHER. Here is the proposition, Mr. Rubey: Last spring before any wheat was harvested we made an effort with the department here to have those grades changed so as to put a lot of wheat that would be graded in No. 4 up into No. 3.

Mr. RUBEY. Yes.

Mr. TINCHER. I was informed by the department (and I have the letter yet) that there would be no change in those grades. They did make the change in the grades and put a large majority of wheat in my district from 4 to 3. That made a difference to the farmer of about 28 cents a bushel on his wheat, because, while the Department of Agriculture had nothing to do with the differential between grades 3 and 4, and that was done by the Grain Corporation, they did control the grades, and, when they were informed that the wheat they were putting down in No. 4 was absolutely good milling wheat and that that ought to be up in No. 3, they ought to have done that.

I want to have the respect for the Department of Agriculture that I had before I came to Congress, and I think the farmer ought to be able to rely upon the Department of Agriculture as his friend; but is there anything on record anywhere where the Department of Agriculture ever made one fight with the Grain Corporation in the interests of the producer of wheat—where it ever wrote one letter or tried to help the farmer with the Grain Corporation?

Mr. HEFLIN. That was a nonpartisan board, was it not, composed of Republicans, largely?

Mr. TINCHER. I am not talking about the Grain Corporation. I do not know what it is composed of. There are a lot of renegade Republicans just like there are a lot of renegade Democrats. They knew nothing about wheat, or very little, and they had a vital proposition in wheat.

Mr. RUBEY. That whole system is going to be gotten rid of anyway within a few months.

Mr. LIVINGSTON. It has been gotten rid of now. The price-fixing business stops with this crop.

Mr. RUBEY. In the end we will probably have no prices fixed; and then the scheme of putting these grades into effect will go on without confronting those difficulties.

Mr. LIVINGSTON. I think so.

Mr. RUBEY. I think the thing we are discussing now is something that is already past and can not come up in the future, and I doubt whether it is worth while giving any more time to it.

Mr. TINCER. It is absolutely in the future.

The CHAIRMAN. You say you did not have any authority to fix prices, but only to fix grades?

Mr. LIVINGSTON. Yes.

The CHAIRMAN. And Mr. Anderson contends that the Wheat Corporation had no authority above——

Mr. ANDERSON. I said they had no authority above a fixed price.

The CHAIRMAN. The law says, "The President shall thereupon fix such guaranteed prices for grain, and so forth, according to such standards as are established under the United States grain-standards act, approved August 11, 1916."

Mr. LIVINGSTON. Yes.

The CHAIRMAN. When we speak of the President in this matter we have, of course, reference to the Secretary of Agriculture.

Mr. LIVINGSTON. Yes; with respect to the fixing of grades.

The CHAIRMAN. It is true that the law gives the authority to the President, but that means the Secretary of Agriculture, as we understand it.

Mr. LIVINGSTON. Yes.

The CHAIRMAN. Either the President or the department had the authority to fix the different grades.

Mr. HARRISON. The President's authority was exercised through the Food Administration and not through the Department of Agriculture.

The CHAIRMAN. I have the language here. It says "shall fix such guaranteed prices" according to the grain standards. That means a certain price for each grade. The minimum was \$2. The authority was in the President.

Mr. LIVINGSTON. The department did not exercise the price-fixing authority under the food-control bill.

Mr. YOUNG. You have been reading from the food-control law?

The CHAIRMAN. From section 14 of the act of Congress.

Mr. YOUNG. That does not touch the proposition that this department had nothing on God's green earth to do with fixing these prices.

The CHAIRMAN. The differentials as stated in the act.

Mr. RUBEY. That was given to the President, and the President turned that over to the Grain Corporation.

The CHAIRMAN. As Mr. Livingston said, when it spoke of the President it meant the department.

Mr. RUBEY. The President did not turn it over to the Department of Agriculture.

The CHAIRMAN. That is Mr. Palmer's idea. You say here that we should drop it and condone it. If that position is to be taken, very well, but I dissent.

Mr. RUBEY. We are here acting upon our own responsibility and not upon the responsibility of Mr. Palmer or anybody else.

The CHAIRMAN. Exactly; and so far as I am concerned, I will not support anything of the kind.

Mr. YOUNG. I guess I am in rather a unique attitude in the committee. I opposed this whole price-fixing scheme both in the committee and on the floor. I am going out of Congress, but I do want to leave in this record that the United States Department of Agriculture did not have a thing to do with the manipulation of this

price-fixing scheme. Let it be right or wrong, whatever act has been done has been done by the Food Administration in the wheat end of it, in charge of Mr. Barnes. I do not want this record to show that our permanent Department of Agriculture has been guilty of any of these things, right or wrong, because you know and I know, and every other member of this committee knows, that, so far as the price-fixing part of it is concerned, it is administered by a different piece of machinery from that of the Department of Agriculture.

The CHAIRMAN. The general opinion seems to be that the Department of Agriculture had something to do with it.

Mr. YOUNG. That is what I want to correct. It did not.

The CHAIRMAN. Where it rests at the present is up to the Grain Corporation to explain. As Mr. Livingston has said, the department had nothing to do with it, but I also want to clear up the matter whether the department did have authority from the President to fix prices.

Mr. HARRISON. The President had the authority, but the department did not.

The CHAIRMAN. I want to make it clear that the President did have authority.

Mr. HARRISON. The law says "the President"—not "the Secretary of Agriculture."

The CHAIRMAN. The President did have the authority.

Mr. HARRISON. But he exercised it through the Food Administration and the Grain Corporation—not the Department or the Secretary of Agriculture.

The CHAIRMAN. Will you tell us something about these salaries under the grain-standards item?

Mr. LIVINGSTON. The salaries are all listed on page 259. The salaries that we are paying are substantially the same salaries that are being received in the trade. The salaries of our grain samplers average a little higher than those being paid by grain exchanges, chambers of commerce, and the like.

The CHAIRMAN. If you will refer to the hearings I think you will find that the department salaries are much higher than those paid by the trade; there is complaint about the salaries.

Mr. LIVINGSTON. I have here a card index of every grain exchange or other organization supporting a grain-inspection department, with the salaries which are paid to inspectors and samplers, and I would be glad to answer any question.

The CHAIRMAN. Take Minnesota, for instance.

Mr. LIVINGSTON. The salaries for Minnesota were inserted in the record last year.

The CHAIRMAN. You have salaries up to \$4,000?

Mr. LIVINGSTON. Would you like to have that inserted in the record?

The CHAIRMAN. How much are they paid?

Mr. LIVINGSTON. Members of the Board of Grain Appeals at Minneapolis each receive a salary of \$3,000.

The CHAIRMAN. How much do you pay the members of your board?

Mr. LIVINGSTON. The department's man, who is stationed in Minneapolis, is getting \$3,000; he is in charge of the office.

Mr. ANDERSON. The supervisor?

Mr. LIVINGSTON. The supervisor.

The CHAIRMAN. How much is paid by the State?

Mr. LIVINGSTON (continuing). The highest salaried man on our appeal board gets \$3,240. This board is located at Chicago and is the appeal board for the entire United States. The men on the appeal board located at Minneapolis are employed by the State of Minnesota and handle appeals on grain which arise in Minnesota, for the State of Minnesota.

The CHAIRMAN. How much do they pay?

Mr. LIVINGSTON. \$3,000.

The CHAIRMAN. And you pay how much?

Mr. LIVINGSTON. We have a grain supervisor located at Minneapolis who supervises the work of this appeal board, together with all inspectors located there, and he gets \$3,000.

The CHAIRMAN. How much does the State of Minnesota pay inspectors?

Mr. LIVINGSTON. Our records show that at Minneapolis there is one chief deputy inspector at \$3,000, and there are four assistants at \$2,110 each. I find that the average annual salary of the 24 inspectors, including the chief inspector and deputy inspectors, is \$2,077. They have approximately 15 deputy inspectors at an average salary of \$1,850, plus an average annual overtime of about \$185, making a total annual salary of \$2,035. Four deputy inspectors, \$1,600, plus an average annual overtime of \$160, making a total of \$1,760.

The eight foremen of samplers average \$1,440, plus an average overtime of \$144, making a total of \$1,584.

They have a number of grain samplers at a salary of \$1,320, plus an average overtime of \$132, making a total average annual salary of \$1,452; and—

The CHAIRMAN. Your samplers are paid from \$1,200 to \$1,740?

Mr. LIVINGSTON. Yes.

The CHAIRMAN. That is exclusive of the bonus?

Mr. LIVINGSTON. To those who have been in the service we pay the bonus in addition. The average salary we pay the samplers in the service is \$1,508.08.

The CHAIRMAN. Your salaries run from \$4,000 down to \$1,620?

Mr. LIVINGSTON. I will read you, Mr. Chairman, the salaries of the chief inspectors at some of the important markets. Minneapolis, \$3,000; Chicago, \$4,000.

The CHAIRMAN. Where would you make your comparison—with what position?

Mr. LIVINGSTON. I will read, first, the name of the city; second, the salary of the chief inspector employed by the State, board of trade, chamber of commerce, or some other organization; and, third, the salary paid to the grain supervisor, who is the employee of the Bureau of Markets.

First, Minneapolis: Chief inspector's salary, \$3,000; grain supervisor's salary, \$3,000.

The CHAIRMAN. That is the Federal salary?

Mr. LIVINGSTON. The last one I read is the salary of the Federal supervisor.

Chicago: Chief inspector's salary, \$4,500; Federal supervisor's salary, \$3,240.

New York. Chief inspector's salary, \$10,000; Federal supervisor's salary, \$3,240.

Indianapolis: Chief inspector's salary, \$3,000; Federal supervisor's salary, \$2,080.

Toledo: Chief inspector's salary, \$4,000; Federal supervisor's salary, \$2,760.

The CHAIRMAN. I think that is sufficient. Is there not considerable difference between the responsibilities of the work of the one and the other?

Mr. LIVINGSTON. Yes; our man has the greatest responsibility and gets the smallest salary.

The CHAIRMAN. In what respect is his responsibility greater?

Mr. LIVINGSTON. Because he is responsible for the correct grading of all grain that goes through that market subject to the grain standards act.

The CHAIRMAN. I take it that the inspector in Minneapolis supervises the whole grain-inspection service?

Mr. LIVINGSTON. Yes.

The CHAIRMAN. You have a man there?

Mr. LIVINGSTON. Yes, sir; the man you describe is our man. He has under his jurisdiction the State inspectors, all of whom are licensed inspectors.

The CHAIRMAN. To what extent?

Mr. LIVINGSTON. So far as the administration is concerned and so far as the correct grading of the grain is concerned.

The CHAIRMAN. He is acting in the capacity of the inspector who checks the service?

Mr. LIVINGSTON. No; he acts as supervisor, as his name indicates.

The CHAIRMAN. What does the State inspector and supervisor do?

Mr. LIVINGSTON. The State inspector actually looks at the grain and passes judgment upon it, and the Federal supervisor checks up his work to see whether or not it is done accurately.

The CHAIRMAN. What does the State supervisor do?

Mr. LIVINGSTON. I do not recall any State that has a supervisor.

The CHAIRMAN. You compared salaries.

Mr. LIVINGSTON. The chief inspector at these markets is the chief of the staff at the market.

The CHAIRMAN. He really supervises the work?

Mr. LIVINGSTON. From the administrative standpoint, yes, sir.

The CHAIRMAN. He checks what you do?

Mr. LIVINGSTON. He may check it up, but his judgment is not final on that matter.

The CHAIRMAN. What does the chief inspector do?

Mr. LIVINGSTON. The chief inspector employs the grain samplers, and he probably tells them in which yard they will be located. He employs, perhaps, the inspectors, and tells them their hours of service, and things of that sort.

The CHAIRMAN. He is in charge of the force and is responsible for it?

Mr. LIVINGSTON. The responsibility for securing the correct grade of grain at any of those markets rests on the Federal grain supervisor. This chief inspector, if he actually inspects the grain, is under the supervision of the Federal supervisor so far as the correct grading of the grain is concerned. The chief inspector is in

authority over the expenditure of State funds or funds provided by boards of trade and chambers of commerce.

The CHAIRMAN. Does your man examine every sample, as you have indicated?

Mr. LIVINGSTON. He does not examine every sample. Ordinarily, we have one supervisor who is on the floor of the inspection department.

The CHAIRMAN. Does not the State officer do the same; whether you call him supervisor or inspector it matters not?

Mr. LIVINGSTON. He probably has some administrative officials who act in an administrative capacity in respect to their own men.

The CHAIRMAN. Is it not positive?

Mr. LIVINGSTON. That depends on the inspection department.

The CHAIRMAN. You were speaking about Minneapolis.

Mr. LIVINGSTON. They have two or three so-called reinspectors. Those reinspectors act in an advisory capacity.

The CHAIRMAN. Your supervisor has to check them?

Mr. LIVINGSTON. Yes.

The CHAIRMAN. Are not this supervisor and this inspector doing practically the same kind of work?

Mr. LIVINGSTON. No.

The CHAIRMAN. Is the Federal Government doing all of it?

Mr. LIVINGSTON. No.

The CHAIRMAN. Is the State doing part of it?

Mr. LIVINGSTON. The Federal Government is doing no actual inspection work. All of the inspection work is done by the licensed inspectors.

The CHAIRMAN. Does not the State pay the licensed inspectors?

Mr. LIVINGSTON. Yes.

The CHAIRMAN. Then the State is doing it?

Mr. LIVINGSTON. Yes.

The CHAIRMAN. Why not say that the State is doing it, because it is paying for it?

Mr. LIVINGSTON. I never said the State was not doing it.

The CHAIRMAN. All that the Federal Government does is to issue licenses and check up?

Mr. LIVINGSTON. Yes, sir.

The CHAIRMAN. Are we going into Minneapolis in the grain market and doing part of the physical work or are we unloading the responsibility on the State?

Mr. LIVINGSTON. We do a lot of the physical work in the way of sampling cars for supervision purposes and for appeal purposes, but we do not relieve the State of any physical labor that is connected with the inspection of grain in the first instance.

The CHAIRMAN. We are still talking about supervisors. What do they do?

Mr. LIVINGSTON. The grain supervisor has on his staff one or more samplers.

The CHAIRMAN. How many samplers?

Mr. LIVINGSTON. That will depend on the market.

The CHAIRMAN. How many in Minneapolis?

Mr. LIVINGSTON. Nine.

The CHAIRMAN. He has nine.

Mr. LIVINGSTON. Those samplers are sent out to the railroad yard.

The CHAIRMAN. They bring in samples?

Mr. LIVINGSTON. Yes.

The CHAIRMAN. They bring them to the supervisor?

Mr. LIVINGSTON. Yes; and he grades them and checks up the grade which he places upon it with the grade placed upon it by a licensed inspector employed by the State.

The CHAIRMAN. He has a force of nine people. How many people has the State inspector?

Mr. LIVINGSTON. I do not have that totaled up, but there are a number.

The CHAIRMAN. About 200, are there not?

Mr. LIVINGSTON. Yes; I should say there are 200. However, these are divided among several points within the State.

The CHAIRMAN. Is not the responsibility greater with a force of 200 than it is with a force of 9?

Mr. LIVINGSTON. That would depend on how you describe responsibility. One is a financial responsibility and the other is a responsibility for applying standards.

The CHAIRMAN. Are not the labors greater?

Mr. LIVINGSTON. I should say not. I should say that the responsibilities of the Federal supervisor (and I think this is considered true in every market of the country) are greater than those of the chief inspector. Of course, it is a different type of responsibility.

The CHAIRMAN. You are the one that drew the comparison. There is nothing wrong about it. I wanted to try to find out just what these people do.

Mr. LIVINGSTON. Yes. One of them is a Federal employee, and the Federal supervisor is not a licensed inspector.

The CHAIRMAN. What salary do you pay these nine assistants?

Mr. LIVINGSTON. I think the salaries vary from \$1,200 to \$1,620, depending upon the length of the service. The last item, Mr. Chairman, is No. 97, page 260, relating to the enforcement of the United States warehouse act. Mr. Murph will discuss this item.

FURTHER STATEMENT OF MR. DANIEL S. MURPH, SPECIALIST IN COTTON MARKETING AND WAREHOUSING, BUREAU OF MARKETS, DEPARTMENT OF AGRICULTURE.

Mr. MURPH. Mr. Chairman, the estimates request an increase of \$45,000 over the amount carried in last year's appropriation act for the enforcement of the United States warehouse act. There was available, however, during the present year \$38,000 from the original continuing appropriation, so that the increase asked in the estimates over the amount available during the present year is in reality only \$7,000.

I should like to make a statement which will follow very closely the statement contained in the note in the estimate book on the enforcement of the warehouse act, as to the reasons for the request of an increase for the next year.

There have been up to this time, Mr. Chairman, two or three reasons why the work under the United States warehouse act has not been extended as rapidly as it would have been under other

conditions. One is that it is very difficult to get men with the proper equipment and training to carry on this work, which was a new activity, and we felt that we must have the very best men we could get. Another reason was the fact that for some of the commodities to which the warehouse act is applicable there was during the war Governmental control, and a licensing system which was, in effect, compulsory. The Bureau of Markets felt, that under those conditions, it would not be wise to urge a system of licensing which was designed for bettering trade conditions, but was not compulsory, while the trade was under a compulsory system of licensing under another branch of the Federal Government.

Mr. Chairman, we felt that the time would come when we would be able to give, after the close of the war, an effect to this as permanent peace legislation that would be out of proportion to the value of temporary legislation under the war period. So we felt, for some of these reasons, that the enforcement of the provisions of the act as it related to certain commodities would better be deferred until after the close of the war.

We expect from this time on a very great development and expansion of the work under the United States warehouse act for the reason that having entered more fully and more completely, on the expiration of the war, into the work of carrying out its provisions, we have made certain definite agreements and taken certain definite steps which seem to us to assure the more widespread application of the act and its benefits to people who are interested in warehousing agricultural products. In the first place, then, we have entered into an agreement, Mr. Chairman, with State officials of North Carolina whereby the warehouses that are licensed under the State law of North Carolina will be licensed under this act. In North Carolina a law has been passed which enables the State government to loan money for the building of warehouses, and we have entered into a very close arrangement with them by means of which they are to take out licenses under the Federal act.

Mr. ANDERSON. Who?

Mr. MURPH. The officials in North Carolina.

Mr. ANDERSON. How can they take out a license under the Federal act to build private warehouses?

Mr. MURPH. They are licensed under State control. I will ask Mr. Nixon to explain the details.

Mr. NIXON. The State will control quite a number of warehouses which will be leased to the State, and actually operated under the supervision of a State official known as the State superintendent of warehouses. He has agreed that every warehouse operated under his supervision will be conducted in accordance with the requirements of the Federal act.

Mr. ANDERSON. Let me see if I understand correctly about that? Do I understand that these warehouses are actually operated by the State, by officials of the State, simply under State supervision?

Mr. NIXON. They are under State supervision legally. As I understand it, when the owner of a warehouse wishes to obtain the benefit of the State system of warehousing he will lease his warehouse to the State superintendent of warehouses for a nominal sum, then the State superintendent will designate a local manager and a local

classifier, who operates the warehouse under the name of the State of North Carolina. The State superintendent will be licensed to operate each of these warehouses under the Federal act.

Mr. McLAUGHLIN of Michigan. He gets a license from the Federal Government?

Mr. NIXON. Exactly.

Mr. McLAUGHLIN of Michigan. And he is known as the Federal inspector?

Mr. NIXON. No; he is licensed under section 9 of the act, authorizing the Secretary to license persons not warehousemen who have control of State warehouses.

Mr. McLAUGHLIN of Michigan. Is he compensated by the Federal Government?

Mr. NIXON. No licensee is compensated by the Federal Government.

Mr. ANDERSON. It does not seem to me that "issuing to persons not warehousemen" contemplates any such arrangement.

Mr. NIXON. It was our understanding from the beginning that the provision of section 9 was made to enable us to license these officials who had actual supervision over warehouses.

Mr. ANDERSON. I must say that that is a very strange arrangement.

Mr. NIXON. As I understand, Mr. Murph, that section was put in for that specific purpose.

Mr. MURPH. That is my understanding. If I may read the section—

Mr. ANDERSON. I have the language here.

Mr. MURPH. The language provides for it specifically.

Mr. YOUNG. What does the Government do before issuing a license?

Mr. MURPH. The Government before it issues a license satisfies itself that the warehouse is a proper place for the storage of the commodity for which it is intended. Then the warehouseman that applies is required to give a bond. If the bond is satisfactory, the license is issued, and whatever the warehouseman does he does as being licensed by the Federal Government, and the warehouse is subject to inspection by the Federal Government and is operated under the applicable rules and regulations of the Secretary of Agriculture.

Mr. ANDERSON. It strikes me that section 9 contemplates licensing the owner of the warehouse and not the State supervisor.

Mr. MURPH. The State supervisor in the sense Mr. Nixon uses the term is the State official who has charge of the operation of the warehouse leased.

Mr. NIXON. Exactly. That is what I understood the section (section 9 of the act) to provide for.

Mr. YOUNG. Have you gone far enough with the administration of this warehouse law to find what effect it is going to have?

Mr. MURPH. Mr. Young, I think, if I may proceed along the line I was going, it will answer your question.

The CHAIRMAN. What is there beyond what you have told us that requires an expert to examine the warehouse?

Mr. MURPH. A great deal of this work at the outset was investigational work—for instance, work relating to the requirements that should be made of a warehouseman before he was licensed, to deter-

mine what, as a matter of fact, are proper regulations, what are proper requirements—and we tried to be very careful in working out the fundamental requirements of warehousemen, and it was for that class of work that we felt we should be very sure of our ground before we determined that such and such a requirement should be made. We wanted to make requirements in harmony with the spirit of the act, and we wanted to make requirements that were reasonable and would bring about the practical results we had in mind.

The CHAIRMAN. Have the requirements been definitely formulated?

Mr. MURPH. Yes, sir; the regulations have been issued for cotton warehouses and grain warehouses. Regulations for tobacco warehouses and wool warehouses are in tentative form, and hearings will be held in February on wool warehouses and in April on tobacco warehouses. Regulations are written in tentative form, and after we get what we think is desirable we take them to members of the trade to see if they are suitable. Sometimes we get valuable suggestions and sometimes we get suggestions that we do not adopt. But the regulations have been adopted for cotton and grain warehouses and have been prepared for tobacco and wool warehouses.

The CHAIRMAN. What other warehouses are contemplated?

Mr. MURPH. Flaxseed is the other product covered by the act.

The CHAIRMAN. Are you not practically through with the investigation?

Mr. MURPH. We have very nearly reached the point where we can turn our attention to the actual administration of the act as it applies to warehouses and the issuing of licenses.

The CHAIRMAN. What is there about that that requires an expert?

Mr. MURPH. In reference to the inspection of warehouses in order to determine whether they are kept in proper condition, and as to whether the commodities carried in them are kept in proper condition, the Secretary has the authority under this act to inspect the commodities stored in warehouses to see whether or not they are properly taken care of. We require men with knowledge of that kind. We expect also to give suggestions as to the construction of warehouses.

Mr. McLAUGHLIN of Michigan. How often do you make these inspections?

Mr. MURPH. We do not make them at stated intervals, because we think it is better that the warehousemen shall not know just when we are going to make them.

Mr. McLAUGHLIN of Michigan. I know; but about how often has it been?

Mr. MURPH. So far about every six weeks.

The CHAIRMAN. How many warehouses have been licensed?

Mr. MURPH. We have now received applications for 83 cotton warehouses and have licensed 19. We have received applications to-day for the one hundredth grain warehouse, and have licensed 1.

The CHAIRMAN. You have licensed 19?

Mr. MURPH. Nineteen cotton warehouses have been licensed, and we have had applications for 83. The others are pending. We have received applications for 100 grain warehouses. The regulations and the application forms for grain warehouses have been in usable form

only about one month. In that time we have received applications for 100 warehouses and have licensed 1.

The CHAIRMAN. Of grain?

Mr. MURPH. Yes. I make that statement to show why the number of applications is so great compared to the number of warehouses actually licensed. We have had them out for only about four weeks.

The CHAIRMAN. Until we amended the law, practically rewrote the law, there were few applications, were there not? As it stands, there is very little left of the law.

Mr. MURPH. There were about 60 applications before the act was amended.

The CHAIRMAN. How many licenses did you issue prior to the amendment?

Mr. NIXON. About 10, Mr. Chairman.

Mr. MURPH. You will understand, of course, that the regulations for grain warehouses were not issued until after the act was amended, so I could not give figures for grain warehouses at all.

Mr. McLAUGHLIN of Michigan. Are these inspectors who look over these warehouses employed all the time?

Mr. MURPH. Yes, sir.

Mr. McLAUGHLIN of Michigan. How many of them have you?

Mr. NIXON. We have three men who do inspection work, but all their time is not given up to it, for we find we can use their time economically by doing some other work in the interim of making inspections.

Mr. McLAUGHLIN of Michigan. What are they paid?

Mr. NIXON. About \$1,800 to \$2,700.

Mr. McLAUGHLIN of Michigan. And their traveling expenses?

Mr. NIXON. And their traveling expenses; yes, sir.

Mr. McLAUGHLIN of Michigan. If you have a licensed warehouse at no more places than you have spots on the map, you will require a good many inspectors—traveling men. How many?

Mr. NIXON. It would be very difficult to estimate offhand. I should say that we have held up the inspections of those warehouses until other applications have been received, in order to save traveling expenses very largely, in the same community, so that a man can make inspections with comparatively little travel for each inspection.

The CHAIRMAN. This law has been in operation about three and one-half years, has it not?

Mr. NIXON. Yes.

The CHAIRMAN. And we have 20 warehouses licensed. You are not making very much progress, are you?

Mr. MURPH. When you consider merely the number of warehouses licensed the results do not appear commensurate with the time that the act has been in operation. But there are other considerations—

The CHAIRMAN. But we have expended about \$200,000.

Mr. MURPH. I do not recall.

The CHAIRMAN. The first year it was \$50,000, then \$59,620, then \$53,540, and last year it was \$35,000.

Mr. NIXON. Those amounts have never been entirely expended.

The CHAIRMAN. How much have you turned back into the Treasury?

Mr. NIXON. I know we had an original \$50,000 appropriation, and we had at the beginning of this fiscal year \$38,000 of that, so that it will be seen that prior to this fiscal year only \$12,000 out of the \$50,000 had been spent, and then we turned back a considerable amount of the \$59,000 for the second year.

Mr. HARRISON. \$96,000 has been expended in three years.

Mr. McLAUGHLIN of Michigan. How many people are employed in Washington?

Mr. NIXON. We have 12 people altogether, and three of those are in the field practically all of the time and another one is in the field a good deal of the time. We sent out another man recently on investigational work.

The CHAIRMAN. You are asking for an increase of \$45,000.

Mr. NIXON. I do not remember whether Mr. Murph covered that point or not. We had a balance of \$38,000 from the original appropriation at the beginning of this fiscal year. That, together with the \$35,000 appropriated for the current year, makes \$73,000 available for the present fiscal year; so the increase is actually only \$7,000.

The CHAIRMAN. Mr. Harrison says you have expended \$96,000.

Mr. HARRISON. In the three years.

The CHAIRMAN. That would build warehouses, would it not, and not only license them?

Mr. NIXON. It would not build very many at the present cost of material.

The CHAIRMAN. Are they large houses?

Mr. NIXON. Some of them are, and a great many of them are comparatively small.

The CHAIRMAN. I am at a loss to know why you should require the services of \$2,700 men to inspect these warehouses?

Mr. MURPH. His services, Mr. Haugen, are not entirely given to inspecting warehouses.

The CHAIRMAN. You said you had three inspectors?

Mr. MURPH. I said a part of the time was given to inspection. A part of the time of the three field men is given to inspection; but this \$2,700 man spends a part of his time in Washington and has done valuable investigational work.

Mr. McLAUGHLIN of Michigan. What kind of investigational work is necessary?

Mr. MURPH. Work looking to the promulgation of proper rules and regulations, the determination of what ought to be included in rules and regulations.

Mr. McLAUGHLIN of Michigan. If a company builds a warehouse, do you go and see if it is sufficient?

Mr. MURPH. That has to be done after the application has been received; but, before any applications are received, the Secretary, under the act, must issue regulations for the operation of warehouses that may be licensed, and a licensed warehouseman must know what he is expected to do under the act; and, in order to do that, it was necessary to do a considerable amount of investigational work.

Mr. ANDERSON. What are you going to do with a man who violates some of the terms of the license?

Mr. MURPH. We have authority under the act to revoke his license.

Mr. ANDERSON. He does not need any license to do business. Why is he any worse off than before?

Mr. MURPH. He does not want to have his license revoked. It is an advantage to do business under Federal license.

Mr. ANDERSON. Let us see about it. Two or three amendments were adopted to this act at the last Congress, or thereabouts. One of those amendments did away with the requirement for fire insurance. Another one of those amendments permitted warehouse receipts to be issued in case where the articles were not classed or graded in accordance with some standard. Under the law as it now stands, the warehouseman can issue a receipt for one bale of cotton, against which there would be no fire insurance, and against which there was no grade stated or anything of that sort. Do you mean to tell us in the note under this item that the Federal Reserve Board or somebody, some Federal reserve bank, is going to give a preference to that kind of a receipt?

Mr. MURPH. They have stated so. I may make this statement in reference to the two points you have just mentioned. With reference to the statement of grade, the amendment, as I recall it, provides that when requested by the depositor a certificate may be issued omitting the statement of the grade, but the receipt itself will always show whether or not the grade is stated. In reference to the other point regarding the elimination of the requirement in the act for fire insurance, as long as that language was in the act it was construed by bonding companies to be subject to the interpretation that the bonding company, as a matter of fact, was practically insuring the cotton. With that language eliminated that objection was overcome. That was an excuse for requiring a higher premium rate on bonds by the bonding company.

Mr. ANDERSON. Nobody ever thought of that particular reason for putting this amendment in when it was made.

Mr. MURPH. I did not think of that. I was with this committee when this act was adopted. I did not think of that, but so long as this language remained in the act the bonding companies had used it for the exaction of a higher premium, or for taking a position of aloofness from issuing bonds to warehousemen. Now, as a matter of fact a receipt will show whether or not the cotton or other commodity stored is insured, so that the receipt carries on its face an indication as to its exact value.

Mr. JACOWAY. Mr. Murph, why did you not enforce the provisions of that act before you did?

Mr. MURPH. The war emergency and some of the things touched by those amendments had a deterrent effect. We felt that those amendments removed objections and did not destroy the fundamental purposes of the act, and at the same time made it a little more workable.

Mr. ANDERSON. In other words, there were a lot of rotten warehouses around the country on which nobody would take a risk, and by eliminating this provision you could license them.

Mr. MURPH. That was not the purpose. The purpose was, as I have outlined, to change this language so that it would give the bonding companies no excuse for claiming that practically the bondsmen became insurers for the commodity stored in the warehouse.

Mr. TINCHER. What class of warehouses is applying for the licenses?

Mr. MURPH. Cotton and grain warehouses.

Mr. TINCHER. I am going to be frank with you. I had a gentleman get me a list of the Kansas warehouses. I see some in my district, four or five in my own congressional district, and no one of them is in a town, I would say, to exceed 300 population. In that congressional district, which produced more wheat than any other district in the United States last season, there are good towns—Great Bend, Pratt, Lenora, all great grain centers—and each one has a good big warehouse. None of those is mentioned. None of them applied, but only the small places with a high school, with a little railroad station, and probably 200 or 300 people. You do not seem to have these large warehouses.

Mr. MURPH. We have licensed only one grain warehouse. As I have stated, the regulations for grain warehouses were not sent out until about the middle of December.

Mr. TINCHER. None of those in Kansas are licensed?

Mr. MURPH. None.

Mr. TINCHER. Why is that? I do not want to reflect on these little ones, but why is it that the big ones have not asked for licenses?

Mr. ANDERSON. The whole theory of this act is to permit a piece of land with a barbed-wire fence around it to be a warehouse under the Federal Government and to have a standing as such.

Mr. TINCHER. The fence is costing too much.

Mr. HEFLIN. You do not concede any such proposition as that, Mr. Murph?

Mr. MURPH. We have not licensed places like that, Mr. Anderson.

Mr. ANDERSON. The act permits it.

Mr. HARRISON. There must be a "warehouse" at least.

Mr. ANDERSON. No; a piece of land inclosed with something.

Mr. MURPH. The act refers to an inclosure. I think I know what you have in mind, but we have not licensed any such place under the act.

Mr. TINCHER. If those small towns want licenses and nobody else wants them, of course, I want you to give it to them.

Mr. MURPH. Mr. Tinchler, as I understand, your statement with reference to warehousemen is not a reflection upon the value of those particular warehouses. It is merely that they are small.

Mr. TINCHER. That is it. Their locations would indicate that, they are not the people who are doing the business, and I wondered why the larger warehouses were not taking up the proposition. I know they have large warehouses there.

Mr. MURPH. We have large warehouses that have made application also. I do not know how this happens in Kansas, but, for instance, in Buffalo we have a wheat concern that handles 2,000,000 bushels, which has made application for a license.

Mr. RAINEY. Following Mr. Anderson's suggestion, these investigators of yours who go out to promulgate the work, at least see that there is a building?

Mr. MURPH. Mr. Rainey, of course, we never issue a license to any warehouse without first examining it and seeing that it is a proper place for storage of the particular commodity for which it seeks a

license. The Secretary is to decide what are proper places for storage.

Mr. ANDERSON. I remember when we passed this act there was great opposition to providing that it should be a building, because we were told that in certain sections of the country all they had were pieces of ground with fences around them.

Mr. JACOWAY. To be stored so many feet above ground with a covering on it, and it was brought out that cotton thus stored would not deteriorate.

Mr. NIXON. I may say in that connection that recently we had an informal application from a warehouseman, a man who called himself a warehouseman, from what we speak of as the desert or irrigated area of Arizona. Their practice there is to store it in the open only. As a rule they have a fence around it, but the solicitor's office has just recently advised against licensing any inclosures of that kind, so that question seems to be pretty well settled. It has never been considered on our part except in those arid areas where there is supposedly little damage to cotton from rain or from soil moisture, and even that has now been decided in the negative, so there is no proposition to license an inclosure that is not a building. While we have never written out any definite standards that we go by in our inspection of cotton warehouses, we require that at least three conditions be met. First, there must be a building; the building must have a roof on it so as to make it unaffected by rain and snow; it must have protection for the cotton from the soil moisture; and it must be inclosed so as to prevent theft. In addition to that it must be a risk that can be insured with insurance companies regularly authorized to do business there.

In addition to those requirements as to the physical properties of the buildings, we are insisting that before a warehouseman can become licensed he must submit to us a financial statement showing a certain amount of net assets over and above all of his responsibilities, the amount of those assets depending upon the storage capacity of his warehouse.

We are trying to make a standard that will be sufficiently high to insure the integrity of every receipt issued by a licensed warehouseman. On the other hand we realize that many of the small warehouses; take those in Kansas, for example, are the ones that need assistance, more than some of the larger warehouses, so we are trying not to use standards which will be out of the reach of the smaller warehouses.

Mr. ANDERSON. Is this warehouse business a regulatory proposition?

Mr. NIXON. It is a permissive regulatory act. It is a purely voluntary proposition. Any warehouse that can meet the conditions can become licensed if the warehouseman so desires. If it does not wish to operate under the Federal act that is its own business.

Mr. TINCHER. It is compliance with the idea expressed by my predecessor, Jerry Simpson, to license Government warehouses?

Mr. NIXON. Exactly so.

The CHAIRMAN. The bill was drafted with the view of giving standing to warehouse receipts, was it not?

Mr. NIXON. Exactly.

The CHAIRMAN. Where the receipt meant something, had something back of it, so the banker or the money lender might feel safe in lending money on the receipt?

Mr. NIXON. Exactly.

The CHAIRMAN. It required certain things, last session of Congress we struck out all the provisions, so that now you have just a shell left. You now have a receipt purporting to be from a Government warehouse inspector which in itself may be deceiving, so that now, instead of giving security to the money lender, you may be deceiving him.

Mr. NIXON. I do not agree with you.

The CHAIRMAN. I did make a very vigorous protest. I do not think we should appropriate money to do anything that may deceive the people.

Mr. NIXON. I do not think that is being done, Mr. Chairman, because in the first place the receipts that do not show a statement of the grade are not issued except at the request of the depositor, and then it is done only in the case of products which can not be mixed, where the man gets back the very product that he stored. If a man stores a bale of cotton and he asks that it be not graded, the warehouseman will write conspicuously on the receipt that it is not graded. Any man that accepts that receipt is put on notice, and on the face of the receipt, that the product is not graded.

The CHAIRMAN. Let us see about that. The gentleman who stores a short-weight bale or a bale of inferior quality, of course, will not ask for an inspection. But he will store the bales and will hold a receipt for a certain number. The cotton may be of little value, but he has a receipt for a certain number of bales, which he may take to the banker and draw on.

Mr. HEFLIN. The banker will not lend him any money on that.

The CHAIRMAN. The banker sees that it is a Government receipt and loans the money.

Mr. HEFLIN. The banker will see what grade it is. If he does not, he will not let him have a dollar. You are mistaken about that.

The CHAIRMAN. Look what occurred in Arkansas. That was the excuse for this legislation, to give proper security, if issued under the proper provisions of law. The bill was well drawn, but all the good features in it formerly were taken out.

Mr. HEFLIN. The only way you can get money is this: The banker will say, "I will go down and look at the cotton."

Mr. TINCER. What value, then, would the receipt have?

Mr. HEFLIN. It would tell him that there was cotton there; whereas he might come to the banker and say, "I have 10 bales of cotton at home," and he would not know whether there was any there or not. Then he would ask the man what the grade was, and, if he did not know the grade, he could not get a dollar.

The CHAIRMAN. Of course he can ascertain whether the cotton is there.

Mr. YOUNG. I will speak from actual knowledge of how that situation is handled. We have no Federal warehouse in my district, but we have got some under private and State jurisdiction. When they issue a cotton receipt you have got the name of the party to whom issued, you have got the weight of that bale of cotton, you have got

the grade of that bale of cotton, and the receipt is turned over to the owner of this cotton. If he wants to borrow money on the cotton, he takes the receipt to the bank. The local banker is not a fool.

The CHAIRMAN. Is that a Government warehouse?

Mr. ANDERSON. The purpose of the act was to make it possible to take the receipt to New York or any place.

Mr. YOUNG. I am telling you how it works out. He goes to the local banker. The local banker looks at the cotton tickets and sees what grade it is; he sees that it is properly issued by this warehouseman; then, if he wants to make a loan, he makes it. The banks have a strict supervision over it. They go down and look at the cotton. They are not going to take any chances. Then, if the bank wants to rediscount this paper, it has the right to do it under the Federal reserve act at the Federal reserve bank at Dallas, Tex. They send all these papers, all these certificates. We have not any under Federal supervision yet, but you need not have any doubt that the local banker is not going to take any chances.

The CHAIRMAN. You are not referring now to these licensed warehouses?

Mr. YOUNG. I am interested in what the Federal Government is doing. I am speaking of that community, but that is typical of every community. What I would like to see as to these farm commodities is that there is some little verity given to the Federal Government's certificate of a warehouse. A certificate of this kind is the best paper, I think, if it is properly protected. With the Government supervision and the Government licensing of this local warehouseman, the time will come when these warehouse receipts will pass current all over the country, and men will seek for that kind of an investment. It is a question of whether we have established a system here that will so guard the integrity of the transaction that it will make it a piece of paper that the public will like to invest in.

The CHAIRMAN. That is what we thought at the start, but every protection has been taken away.

Mr. YOUNG. I will say this further: A local banker will not lend his money to the farmers unless he has this warehouse receipt and until he sees that his cotton is there. They take every precaution.

Mr. NIXON. I think we can clear up some of the objections that have been raised in your statement. Every receipt issued to a licensed warehouseman must among other things show the weight of the product for which the receipt is issued, and it must show the grade of that unless the depositor requests that the receipt do not show the grade. There is one other thing it must show, and that is, whether or not it is insured by the warehouseman, and to what extent it is insured. That, it seems to me, would prevent any fraud or deception being practiced upon anyone. Now, as to the purpose of the amendments that you referred to, the first was the one which relates to fire insurance, which had the effect of writing fire insurance into the language of the bond that the warehouseman was required to give.

The CHAIRMAN. The first provision—the insurance provision—favored the insurance trust. The amendment eliminating it was a good amendment. But in addition, the bill provided that the receipt should be conspicuously marked that it was not negotiable; that it would not be negotiable unless certain requirements were complied

with. The requirements were taken out by the amendments and the receipt now does not amount to anything.

Mr. NIXON. The purpose of the amendment permitting the issuance of a non-negotiable receipt, not showing the grade of cotton—I mention cotton because it would not be possible for a grain warehouseman to issue such receipt; that amendment does not apply to grain at all. It applies only to nonfungible agricultural products. A number of cotton mills send out their own buyers who know just exactly what cotton they want, and they determine that the cotton is what they want before they ever buy it. Then they store it in a warehouse. They know what it is, and they have their own banking arrangements to enable them to finance it. They are unwilling to pay the warehouseman to classify that cotton a second time.

Also there is a class of cotton men, some of them cotton factors, cotton exporters, that have their own classifying rooms; they have their own men employed and they send them out to grade the cotton, they are in position to finance their business, and they are unwilling to pay warehousemen to grade it again. It would be an economic loss.

Mr. ANDERSON. We are just asked to appropriate a large amount of money to have the Federal Government classify cotton so that we will know that it is done right. Now, you tell us that it would be an economic loss to have this done.

Mr. NIXON. In particular cases, I do not mean in general. Certain classes of people in the cotton trade do their own grading; I mean in particular cases, and the purpose of the amendment was to provide for those particular elements in the trade.

Mr. HEFLIN. You have reference to contract cotton and the exchanges, Mr. Anderson. He is talking about the large number of spot markets in the cotton belt. There are 820 counties in the cotton belt.

Mr. ANDERSON. I am not talking about spot cotton. We are talking about warehouse receipts.

Mr. HEFLIN. Yes; it is altogether about spot cotton when you are talking about warehouses.

The CHAIRMAN. The cotton is stored, a receipt is given and money is borrowed on the receipt.

Mr. HEFLIN. There is no exchange transaction about that cotton. It is bought off the wagons or out of a warehouse in the spot trade, and Mr. Anderson has reference to money that is appropriated to classify or grade cotton in the exchanges or that is dealt in in the exchanges on contract. Mr. Nixon is talking about cotton stored in the market places throughout the South.

The CHAIRMAN. What the law provided for before was that there should be marked conspicuously on it that the receipt was not negotiable unless it fulfilled certain requirements, but that language was stricken out of the law by the amendments.

Mr. McLAUGHLIN of Michigan. I noticed one of the applications marked in Michigan is in my district, at Pentwater. What kind of an application was made there—for the storing of what kind of product?

Mr. MURPH. Grain.

Mr. McLAUGHLIN of Michigan. What kind of grain?

Mr. NIXON. I could not say, because these applications have all come in in the last two or three weeks and I have not examined them.

Mr. ANDERSON. May I ask if you sent out to the various elevators over the country any communications indicating the great advantages of this permissive Federal warehouse system?

Mr. NIXON. In December we sent out application blanks, with a very brief announcement of the act and the fact that the regulations had been promulgated and that we were ready to consider applications.

Mr. McLAUGHLIN of Michigan. Have you copies of the kind of papers—literature—that you sent out?

Mr. NIXON. I have no copies with me, but I could furnish the committee with copies if it so desires.

Mr. MURPH. Mr. Chairman, if I may make a statement here as indicating the value of licenses to the receipt itself, a gentleman from Georgia told me voluntarily that he lives in a little town, which I shall call A, because I do not care to discriminate, and that 30 miles from A is a town called B. He said in town B there is a warehouse licensed under the United States warehouse act, and that in his own town of A the warehouse is not licensed under the act. People who stored cotton in the licensed warehouse at B borrowed money at 6 per cent on their receipts, whereas people who stored their cotton in the unlicensed warehouse at A had difficulty in borrowing at any price at all, and paid 8 per cent when they could get it. I wanted to know whether there were not some other conditions that would account for this difference, and I asked him whether there were conditions at this second point which ought to be taken into consideration in addition to the fact that the warehouse there was licensed under the act, and he said positively there were not; that the fact that one warehouse was licensed and the other warehouse was not made the difference.

Mr. ANDERSON. I have no question about that at all. The only question in my mind is whether people are not being misled as to the value of this receipt, as to the value of the license system that this law provides for, which is permissive in character without absolutely compelling the enforcement of it in any way.

Mr. MORRILL. The fire insurance companies investigate these things with the greatest of care. I do not believe anybody would accuse them of being deceived or of being imposed on in the matter of these licensed warehouses. They have investigated this situation, and, on the sole consideration that a warehouse is licensed by the Federal Government, they are giving a reduction of as much as 25 per cent in the premium rates.

Mr. ANDERSON. But the real reason is that there is an occasional inspection of the fire risk. That is why the rate is reduced.

Mr. MORRILL. All those things are part of the Federal licensing system.

Mr. ANDERSON. Of course, Mr. Morrill, you do not mean to seriously suggest here that the basis of the fire insurance companies' reduction is the license? It is the inspection.

Mr. MORRILL. I mean that that is one of the things which go with the license under the act. They do not get those benefits without the license.

Mr. ANDERSON. I am talking about the receipt—the value of the receipt issued under a law of this sort.

Mr. MURPH. Mr. Nixon brought out the fact that the receipt in each instance shows exactly all the facts about the bale or bales of cotton that it represents, and that appears to me to answer the objection you have in mind.

Mr. ANDERSON. I do not think it shows all the facts. It simply shows that, when it does not state all the facts, it does not state them all.

Mr. MURPH. For instance, it must state whether or not the cotton has been graded. Now, anybody who wants to know the value of the receipt from the standpoint of the grade, may find it out from reading the receipt. It also states whether it is insured. Anybody interested in the fact may get it from the receipt. There is other information on the face of the receipt, which also states that the cotton is stored subject to all the rules and regulations promulgated by the Secretary of Agriculture under the authority of the act, that is to say all the rules and regulations that are applicable to that particular form of warehouse are embodied in the receipt by reference to the rules and regulation.

Are there any further questions, Mr. Chairman?

The CHAIRMAN. All credit, of course, is based upon integrity and ability to redeem an obligation. The license of itself does not add anything to the security, the integrity or the ability to meet the obligations. Most business is honestly conducted, but, fortunately, not all. What we tried to do was to get security against dishonest practice. We wrote it in the bill, but last session of Congress, unfortunately, the bill was amended striking out the protection against dishonest practices. I believe we ought to put those provisions back in the bill. But it would be subject to a point of order here.

Mr. MURPH. Mr. Chairman, I may state that there is one important respect in which the licensing of warehouses and the proper supervision and inspection of warehouses has a bearing upon the producer in the marketing of his product, and that is to say that he is in a position to store his product in warehouses whose standing is recognized, he is able to finance it, and to market it according to his own judgment rather than according to the dictates of someone who for the time being is his creditor and may be a very persistent creditor. In the case of cotton, for instance, up to this time about 70 per cent of the product has been marketed during four months, during the four harvesting months. That is unsound from many standpoints. It is unsound from your standpoint as a consumer, and it is unsound from the standpoint of the man who makes it as a producer. Now, the establishment of a uniform system of warehouses in that trade, as well as the establishment of a uniform system of warehouses for grain and other commodities, presents to the producer an opportunity to secure credit and to market his product more in accordance with his judgment than with the exigencies of the demands upon him for the payment of his debts. I think that is one important feature.

The CHAIRMAN. Because of increased storage facilities?

Mr. MURPH. Yes.

The CHAIRMAN. Due to this act?

Mr. MURPH. This act contributes to that in that it provides here a vehicle for procuring a better system of storage throughout the producing areas.

The CHAIRMAN. We are grateful to you, Mr. Murph.

Mr. MURPH. May I express, also, in a personal way, my appreciation of having this opportunity to meet with the members of the committee again.

The CHAIRMAN. The committee is very glad to hear you. We are very grateful to you, Mr. Murph.

Mr. LIVINGSTONE. I will have Mr. Sherman make a very brief explanation about item 100, on page 262, "To enable the Bureau of Markets to complete the work of the Domestic Wool Section of the War Industries Board."

The CHAIRMAN. We will hear Mr. Sherman again.

FURTHER STATEMENT OF MR. WELLS A. SHERMAN, SPECIALIST IN CHARGE OF FRUIT AND VEGETABLE DIVISION, BUREAU OF MARKETS, DEPARTMENT OF AGRICULTURE.

Mr. SHERMAN. Mr. Chairman, the War Industries Board issued permits to 179 distributing center dealers—that is to say, wool dealers—in the large markets who had facilities for handling and grading wool in large quantities, and through them the entire domestic wool clip of 1918 was taken over by the Quartermaster's Department for the use of the United States.

The machinery set up by the War Industries Board also permitted the purchase direct from farmers in the fleece wool districts, which, generally speaking, include all the territory west of the Mississippi River, by country dealers.

This regulation provides that the country dealer should pay the grower fair prices for his wool, deducting only moisture shrinkage, freight to the seaboard, and interest on the money invested. In other words, the country dealer was supposed to know when he bought the clip in the grease what its scoured value would be at the seaboard, and the Government bought wool, just as all dealers buy wool, on its estimated scoured value. The valuation committees of the Quartermaster's Department were expert wool men, who were supposed to be able to judge with reference to each lot of wool as it comes from the sheep, and how much it would scour, and the price was based on the scoured value.

The War Industries Board used this little pamphlet, a copy of which I have here, "Government regulations for handling wool clip of 1918," which constitutes practically all there is given to the public in the way of a guide as to how this wool should be handled.

The CHAIRMAN. Did you state the profits that were allowed?

Mr. SHERMAN. It states specifically. Perhaps I might read that into the record, which appears under the clause headed "Profiteering":

"As a guard against profiteering, the books of all approved dealers in distributing centers shall be at all times open to Government inspection, and if it be found that their gross profits, including the aforesaid commission of 4 per cent, are in excess of 5 per cent on the season's business, then such gross profits shall be disposed of as the Government decides."

In explanation I should say just there that the additional 1 cent was what they were permitted to make on the fleece wools which they bought through their own direct purchasing agencies in the field; the 4 per cent being paid them as an addition to the Government fixed price on each lot of them as the Government took it over.

The CHAIRMAN. Those are your 179 dealers?

Mr. SHERMAN. Yes.

The CHAIRMAN. In addition to that, on what were they to have 4 per cent?

Mr. SHERMAN. They were to have 4 per cent paid them by the Government; in addition to that they were permitted to make 1 per cent more on the wool that they actually purchased.

The CHAIRMAN. On their own account?

Mr. SHERMAN. Yes; on the wool they actually purchased, where they sent their own money out into the country and paid for the wool.

Mr. YOUNG. How was the price arrived at that the Government agreed to pay for the wool clip of 1918 and 1919? Who made those price agreements?

Mr. SHERMAN. Those price agreements were arrived at, as I understand—I had nothing to do with it at the time—at a conference between representatives of the Quartermaster's Department and the wool trade itself and, I think, the War Industries Board, as it then stood.

Mr. LEE. And the woolgrowers?

Mr. SHERMAN. The wool trade includes the woolgrowers.

Mr. YOUNG. So it was a mutual agreement between the dealers in wool, the woolgrowers, and the Government?

Mr. SHERMAN. The price as fixed was. On the 31st of December the President issued an order transferring the Wool Division of the War Industries Board to the Department of Agriculture for the purpose of liquidating its business. At that time the board had already sent out blank report forms to the country dealers, on which to make a report of their business, showing in detail their purchases and sales, so that their profits could be determined.

The work, I might say, Mr. Chairman, was turned over to me when it had reached that point. I had my first connection with it at that stage of the game. It came over to us the 1st day of January; the War Industries Board formally dissolved at that time, and this particular activity was referred to the bureau for administration and completion.

The Government had not yet finished taking over the wool; it was not yet yet all valued, and therefore the different central dealers were not in a position to make a report, but just as soon as the valuation of the wool was completed, just as soon as the Quartermaster's Department had taken over the last part of it, they were called on to make a detailed report of their transactions.

Mr. HUTCHINSON. By that date do you mean this month or a year ago?

Mr. SHERMAN. January 1, 1919. The progress of this work to date is that we have received reports from more country dealers than the War Industries Board issued permits to. That is to say, we have found, in checking up the reports the distributing center dealers, the big fellows through whose hands all the wool came at least,

that there were some 1,600 men who bought and sold wool in the United States without any permits at all, whose operations the War Industries Board did not discover and who went through the season without let or hindrance or supervision. We have called upon all those men to make us exactly the same report that has been required from permit holders, and a great many of them have done so, and a great many of them have sent in their excess profits, so that we have actually received reports, which are, at least on their face, satisfactory, from more than 3,600 country dealers, and are now actively dealing with over 3,900 in the closing out of this affair.

The distributing center dealers have, practically all of them, rendered reports, and we are pushing the auditing of those reports just as rapidly as we can, the limiting factor in the work having been our inability to secure enough competent auditors to go into those rather complicated reports and handle them satisfactorily. As you know, the Internal Revenue Service has absorbed practically all auditing talent in this country, and this being temporary work nobody wants it enough to do it. To put it the other way, nobody good enough to do it wants it, because it is only a temporary job.

Up to this time we have collected over \$200,000 in excess profits. We have audited and outstanding for collection accounts showing additional excess profits of approximately \$270,000, and a first inspection of the returns received, which have not been audited in detail, indicates that our total collections should be somewhat in excess of half a million dollars.

I want to say that our investigation so far indicates that there will be about 20 per cent of all the moneys that were collected which we will not be able to distribute back to the grower, because there is at least that proportion of missing information in the record, certain dealers having no records of individuals from whom the wool came, so there will be very much more money to remain in the Treasury as an undivided fund than all you will ever appropriate. In fact, I think we will have a final balance in the Treasury of many times the appropriation you will make for this work.

Mr. JACOWAY. You said your experience in this wool matter has given you certain valuable information and that, if the committee ever called on you to give your information, you felt it would be of some benefit to the wool growers. I want to ask whether your main suggestion along that line would not be to cut out the unnecessary agent or middle man and make it from the producer to the consumer? Is not that what your observation leads you to?

Mr. SHERMAN. I prefer not to go in the record on that further than to say that I think we learned some very valuable lessons as to how some things can be operated from the experience of the Food Administration.

The CHAIRMAN. Thank you, Mr. Sherman.

Is that all, Mr. Livingston? We are grateful to you, sir.

Mr. HARRISON. That completes the estimates of the Bureau of Markets, Mr. Chairman.

The CHAIRMAN. The committee will now recess.

(Thereupon the committee recessed until the following morning at 10 o'clock a. m.)

Activities under lump-fund items, Bureau of Markets.

Project.	Allotment, 1920.	Estimate, 1921.	Increase (+) or decrease (-).
Marketing and distributing farm products:			
Cooperative purchasing and marketing.....	\$30,000	\$30,000	.....
Market surveys of fruits and vegetables.....	22,800	22,800	.....
Market grades and standards for fruits and vegetables.....	25,000	25,000	.....
City marketing and distributing.....	10,560	10,560	.....
Transportation and storage.....	12,780	12,780	.....
Direct marketing activities.....	11,000	11,000	.....
Market business practice.....	25,000	25,000	.....
Foreign marketing activities.....	20,200	20,200	.....
Miscellaneous problems in marketing and cooperation.....	28,160	28,160	.....
Cotton handling and marketing.....	31,000	31,000	.....
Cotton warehousing investigations.....	7,840	7,840	.....
Marketing cotton seed and its products.....	4,700	4,700	.....
Marketing live stock, meats and animal by-products.....	31,000	31,000	.....
Marketing wool (new).....	.....	15,000	+\$15,000
Marketing dairy products.....	13,000	13,000	.....
Marketing hay, feeds, and seeds.....	21,300	21,300	.....
Preservation of fruits and vegetables in transportation and storage.....	23,180	53,180	+ 30,000
Total.....	317,520	362,520	+ 45,000
Market news service on fruits and vegetables.....	250,000	300,000	+ 50,000
Regulation of stockyards.....	75,000	.....	- 75,000
Market news service on live stock and meats.....	105,320	155,320	+ 50,000
Market news service on dairy and poultry products.....	80,600	80,600	.....
Market news service on grain, hay, feeds, and seeds.....	50,000	50,000	.....
Food supply investigations.....	48,800	48,800	.....
Market news service on peanuts.....	12,000	12,000	.....
Market inspection of perishable foods.....	150,000	200,000	+ 50,000
Investigation and demonstration of cotton standards, and cotton testing:			
Investigation and demonstration of cotton standards.....	18,960	18,960	.....
Cotton testing.....	26,960	26,960	.....
Total.....	45,920	45,920	.....
Rural cooperation.....	15,780	.....	\$-15,780
State cooperation in marketing work.....	77,750	104,400	+ 26,650
Grain standardization investigations.....	86,050	86,050	.....
Enforcement of the standard container act.....	3,800	4,800	+ 1,000
General administrative expenses.....	20,635	20,635	.....
Enforcement of the United States cotton-futures act.....	181,780	211,500	+ 79,720
Enforcement of the United States grain-standards act.....	598,600	598,600	.....
Administration of the United States warehouse act.....	35,000	80,000	+ 45,000
Completion of work of Domestic Wool Section of War Industries Board.....	35,000	.....	- 35,000
Total.....	2,139,555	2,361,145	+ 221,590

¹ Includes \$14,540 transferred to statutory roll.² Includes \$30,400 transferred to statutory roll.³ Includes \$16,000 transferred to statutory roll.⁴ Includes \$10,820 transferred to statutory roll.⁵ Includes \$5,400 transferred to statutory roll.⁶ Includes \$3,180 transferred to statutory roll.⁷ Includes \$8,300 transferred to statutory roll.⁸ Includes \$2,000 transferred to statutory roll.⁹ Transferred to office of Farm Management.¹⁰ Includes \$4,400 transferred to statutory roll.¹¹ Includes \$1,900 transferred to statutory roll.¹² Includes \$12,590 transferred to statutory roll.¹³ Includes \$27,500 transferred to statutory roll.

COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Thursday, January 8, 1920.

AFTER RECESS.

The committee reconvened, pursuant to recess, at 2.30 o'clock p. m., Hon. Gilbert N. Haugen (chairman) presiding.

FEDERAL HORTICULTURAL BOARD.

The CHAIRMAN. Who do you desire to have heard, Mr. Harrison?

Mr. HARRISON. Mr. Marlatt will discuss the estimates of the Federal Horticultural Board, on page 266.

The CHAIRMAN. You may proceed, Mr. Marlatt.

STATEMENT OF MR. C. L. MARLATT, CHAIRMAN OF THE FEDERAL HORTICULTURAL BOARD, DEPARTMENT OF AGRICULTURE.

Mr. MARLATT. I think the statement relative to the statutory roll is self-explanatory throughout.

The CHAIRMAN. There are no changes?

Mr. MARLATT. There are no changes that are not fully explained in the statement.

The CHAIRMAN. What is the amount of the increase?

Mr. HARRISON. There are no increases. The changes are merely transfers made at the same salary and lump sums have been correspondingly reduced.

The CHAIRMAN. You might take up these transfers as they appear in the record; the first is item 2, "one executive clerk by transfer from lump fund for enforcement of plant quarantine act, \$2,250."

Mr. MARLATT. I may say in explanation that both the field and quarantine work has developed very rapidly, and we have had to take on several additional employees in the administrative office. These are now being transferred to the statutory roll and the lump sums correspondingly decreased.

Mr. HARRISON. The chairman has in mind having you mention all the items in which a transfer is made so they will appear in the record.

The CHAIRMAN. Yes. We may not have the Book of Estimates before us so we wish to have that information appear in the record. First is item 2; then item 6, "one clerk by transfer from lump fund for eradication of pink bollworm, \$1,620."

Mr. MARLATT. These transfers are: Item 2, one executive clerk by transfer from lump fund for enforcement of plant quarantine act, \$2,250; item 6, one clerk by transfer from lump fund for eradication of pink bollworm, \$1,620; item 7, one clerk, class 3, by transfer from lump fund for eradication of pink bollworm, \$1,600; item 10, one clerk, class 2, by transfer from lump fund for eradication of pink bollworm, \$1,400; item 12, one clerk, class 1, by transfer from lump fund for eradication of pink bollworm, \$1,200; item 13 one clerk by transfer from lump fund for eradication of pink bollworm \$1,080; item 14, one messenger, by transfer from lump fund for eradication of pink bollworm, \$600.

These transfers total \$9,750, and are of clerks in the administrative offices of the board. The growth of the work of the board makes it certain that this administrative force will have to be continued and from time to time enlarged.

The CHAIRMAN. These are simply transfers from the lump sum to the statutory roll?

Mr. MARLATT. Transfers to the statutory roll, and the lump fund correspondingly decreased.

The CHAIRMAN. They are now being transferred at the same salary?

Mr. MARLATT. Yes.

Mr. HEFLIN. What is the amount now to keep the pink bollworm out?

Mr. MARLATT. We are discussing now the general appropriation for the administrative work of the Federal Horticultural Board and will come to the pink-bollworm appropriation later.

Mr. McLAUGHLIN of Michigan. This transfer of this amount for pink-bollworm work to the statutory roll indicates that that work is to be permanent. I will see it in the record.

Mr. MARLATT. The item for the general expenses of the Federal Horticultural Board at one time reached the sum of \$75,000. It has been decreased year by year by transfers from the lump fund to the statutory roll, so that now it is \$47,700. There is, of course, no actual decrease, because we have the services of the men who have been thus transferred. The increase now requested of \$100,000 is for a special purpose which is described in the note at the bottom of page 267 of the estimates. In the enforcement of the various quarantines which have been promulgated under the plant quarantine act we have used this fund of \$47,700, and have also secured the cooperation of the customs officers of the various ports of entry of the United States. The quarantines prohibiting and regulating the entry of plants and plant products have now reached the number of 15, and in addition to that there are some six orders which regulate and control the entry of other foreign products, making 21 controlling orders or quarantines now being enforced by the Department of Agriculture in relation to plant imports.

Mr. McLAUGHLIN of Michigan. The quarantines you speak of are orders issued but not stations located?

Mr. MARLATT. These are orders which govern and regulate the entry of foreign plant products. To enforce these quarantines and to properly administer them, we have established certain quarantine stations at important ports of entry and, as just stated, have secured

additional aid in the enforcement of these quarantines by cooperation with the customs service of the Government; but the work has grown so large that the customs officials can not give the aid which we need and which we have attempted to get from them. It is absolutely necessary for the proper and efficient enforcement of these quarantines to further greatly enlarge our port inspection work.

Mr. McLAUGHLIN of Michigan. Why has it grown? I thought you were getting it under control.

Mr. MARLATT. Most of this work in relation to imports is continuing work and, in addition, new subjects come up for quarantine every year and these mean increased work.

Mr. McLAUGHLIN of Michigan. This is the pink bollworm work, is it not?

Mr. MARLATT. I have not come to the pink bollworm subject yet. I am speaking of the general appropriation for the Federal Horticultural Board to administer the plant quarantine act. The pink bollworm appropriation is a special appropriation considered in another part of the estimates.

The CHAIRMAN. At how many ports are you doing this inspection work?

Mr. MARLATT. We have inspection forces at New York and Boston on the Atlantic side, at San Francisco and Seattle on the Pacific side, at New Orleans, and at the principal border ports of entry from Mexico to the United States—some seven along the Mexican border.

The CHAIRMAN. How many all told?

Mr. MARLATT. All told, the board maintains inspectors at some 12 ports of entry. Much of this work has relation to the quarantine on account of the pink bollworm. It includes, however, all the other quarantines, such as those in relation to corn, wheat, potatoes, fruits, nursery stock, etc. Under the pink bollworm quarantine, for example, all import cotton, which enters chiefly at the ports of Boston, New York, and San Francisco, is subjected to disinfection. An inspection force must be maintained at these ports to inspect and supervise the disinfection of such imported cotton and cotton waste, cotton bagging, etc. Seven huge plants have been erected by private funds for the purpose, one at New York, one at Newark, two at Boston, one at San Francisco, and two at Seattle. There are additional plants at San Francisco and Seattle for the disinfection of oriental corn, wheat, and other grains.

Mr. McLAUGHLIN of Michigan. Do they have to be specially constructed?

Mr. MARLATT. They have all been specially devised and constructed to meet these needs. Some are expensive and cost half a million dollars. One of the plants at Boston is reported to have cost that.

Mr. McLAUGHLIN of Michigan. Under what appropriation was that constructed?

Mr. MARLATT. These plants were built by the importers and others concerned as private enterprises.

Mr. McLAUGHLIN of Michigan. You are operating it by co-operation?

Mr. MARLATT. We are cooperating. The work is done under our supervision and direction. About \$50,000,000 worth of cotton is imported normally.

(At this point item 9, on page 282, of the Book of Estimates, relative to the eradication of the pink bollworm, was taken up for consideration. The discussion will be found under the miscellaneous section of these hearings.)

Mr. MARLATT. Near the beginning of my testimony, I was describing the general work of the Federal Horticultural Board. I pointed out that there are now being enforced some 21 restricting orders on the importation of plants, including cotton, which has been discussed. Another of these orders has relation to corn from the Orient, on account of important corn diseases. A good deal of oriental corn comes into San Francisco and Seattle for local use on the Pacific coast. This corn enters under permit and is disinfected by steam treatment—cooked, dried, and utilized chiefly for chicken feed. There are also quarantines in relation to oriental wheat and other small grains on account of oriental grain diseases. Other quarantines are in relation to foreign fruits, potatoes, sugar cane, certain trees, etc. The enforcement of these 21 restricting orders comes under the general administrative fund for the Federal Horticultural Board. This fund, which is now \$47,700 we have asked to be increased by \$100,000. The purpose of that increase is to establish a more effective inspection service at the principal ports of entry. I have attempted to explain what we have been doing in this work with insufficient forces at some 4 or 5 ports, leaving out the Mexican border ports, and that we have been endeavoring to get aid in this work by cooperation with the customs service. The volume of this port work has grown so that the customs service is not able to help us in any material way, and we have got to maintain our own service at the principal ports of entry of the United States, if proper protection is to be secured.

The need for this service is abundantly evident, not only as to the enforcement of these quarantines, but for the general inspection of incoming boats and traffic to see that infested and quarantined articles are not brought in as ship stores or by passengers or as a part of the cargoes. As an illustration, you may recall the German prize ship *Appam* that came into Norfolk loaded down with various products from Africa. Among those products were some 300,000 bags of cotton seed. We got word of that part of the cargo only by a chance noting of the publication of the contents of the ship. We had considerable trouble with the captain, but we finally got hold of the cotton seed and had it converted into fertilizer. That cotton seed was full of evidences of the pink bollworm and other insect work. This is just one instance. A good many ships come into Norfolk from Brazil, from Santo Domingo, and from the South American countries with cotton seed on board. The same thing is happening at New Orleans, Savannah, and other southern ports, and these ships may bring not only cotton seed, but any of the other articles the entry of which is prohibited or restricted.

The customs service can not be relied upon to safeguard such shipments and materials. The inspector of the Federal Horticultural Board will see that such ships are fumigated, that the hatches are kept closed, and that none of the prohibited cargo is removed

from the ship. Many of these ships are en route to Europe and come to our ports for coal and provisions.

Mr. McLAUGHLIN of Michigan. They may land some of their freight?

Mr. MARLATT. They may, but, even if no attempt is made to land these prohibited articles, their mere presence in our harbors for days and often weeks is a source of great danger unless protective steps are taken. At New Orleans we have now two men, and they have to examine the hundred or more ships that come to that port monthly from Central and South American countries. Those vessels may bring not only prohibited cargoes but also ship stores and articles in the hands of passengers that are prohibited entry. There was intercepted and destroyed in the first two months' work at New Orleans a long list of pests new to our Southern States. This risk is going on all the time throughout the country. There are only two States that have sensed this danger and have taken steps to overcome it, Florida and California.

California has had such a service for some 30 or more years. I fancy California is spending in that work fully \$50,000 annually, perhaps more, in protecting her own State from these port introductions and incidentally protecting the whole United States.

Mr. McLAUGHLIN of Michigan. They are doing good work in those two States?

Mr. MARLATT. Splendid work. The whole country has benefited by this work.

Mr. McLAUGHLIN of Michigan. It seems as though other States that have ports should do the same thing.

Mr. MARLATT. The incentive in Florida and California is the big fruit industries of these States. There is no similar incentive in Louisiana, Alabama, and Georgia, or, at least, it does not work the same way.

Mr. McLAUGHLIN of Michigan. You say if those pests had not been kept out by your activities they would have infested those Southern States. I would think that would be an incentive. You say there is no incentive in Georgia and Alabama. They would have been overridden if you had not taken care of them. Is not that true?

Mr. MARLATT. We have been doing no work of importance except on the Mexican border, and recently at New Orleans.

Mr. McLAUGHLIN of Michigan. You speak of the different things that come in on ships. You have prevented the landing of some things?

Mr. MARLATT. We have not done as much as we would like to. We have now only a limited port service at New Orleans.

Mr. McLAUGHLIN of Michigan. You do not have to do it in California and Florida?

Mr. MARLATT. We are now cooperating with California and Florida. California is paying the bill and is getting some of her authority under our quarantines. The California inspectors have been appointed collaborators of the Department of Agriculture for the purpose of giving them authority to act for the department. This collaborator service costs us from \$1 a year to the maximum of \$25 a month. There is a very great need for this service throughout the United States. We have now an insufficient force at New York,

Boston, San Francisco, and New Orleans. The existing service grew out of the necessity for the administration at certain ports of the regulations as to inspection and disinfection of cotton, corn, wheat, and other imports, the entry of which was limited to these ports. We have insufficient funds to properly care for such imported articles and, now that the war is over, these imports will increase; but the main purpose of the increase is to meet the needs outlined at ports where there is now no service or protection at all.

Mr. McLAUGHLIN of Michigan. Are those States, New York and so on, as backward and as unwilling to help with money as Georgia and Alabama, or are they in the class with California and Florida?

Mr. MARLATT. I do not look on it in that way at all. The port of New York is the main port of America, and the imports that come into New York go to Chicago, St. Louis, and Cincinnati, and every town in the country. You can not expect New York to do the work for the whole country. Boston is much in the same position; the bulk of the cotton importations enter through this port.

Mr. HEFLIN. The port of Mobile makes Alabama one of the principal ports for the Southern States.

Mr. McLAUGHLIN of Michigan. You have offered a good alibi for New York and Boston. Can you think of a good one for the southern places?

Mr. MARLATT. I think there is an equally good argument for New Orleans. That is the important port for Central and South America. We should have a larger force at New Orleans to inspect the many ships that come in there daily. They must inspect the storerooms, etc., as well as cargoes and the baggage of passengers. Such inspection has revealed, for example, boxes of fruit infested with maggots of the fruit flies that we are trying to exclude, and this within a few miles' flight of orange orchards. That is the kind of service that California and Florida are rendering. If Louisiana can not or does not do it, we should undertake the work as a protection to the whole country. We can not force the State to do it.

Mr. McLAUGHLIN of Michigan. They will not do it as long as you do it.

Mr. MARLATT. I am afraid they will not do it anyway. We will not go into Florida and California and duplicate what they are doing, but what we want to do is to take care of these unprotected ports and continue our cooperation with Florida and California. There is a big need as to the ocean ports of America. There is less need of protection on the Canadian side, but there is a big need as to all of the ocean ports. The border Mexican ports are now taken care of under the pink-bollworm appropriation.

Mr. McLAUGHLIN of Michigan. Do you have any inspection service of that kind for Detroit or Port Huron?

Mr. MARLATT. No. There is less need at such northern ports. It is true that some material from China, Japan, and other ports of the Orient enters at Detroit and Chicago, for example, but as a rule we are able to take care of that by other means, that is, by sending inspectors to such ports from time to time, and by requiring as far as we can that such shipments enter and be cleared at the port of first arrival, whether San Francisco, Portland, or Seattle.

Mr. McLAUGHLIN of Michigan. That is a big increase, from \$47,700 to \$145,000. It is an increase of about \$100,000.

Mr. MARLATT. It is an increase of \$100,000, and it is a small increase compared with the amount of work we want to do and the danger which we know to exist and want to control.

Mr. McLAUGHLIN of Michigan. The practice has been adopted by the committee, and has been followed in the case of the other gentlemen who have appeared before the committee when increases in appropriations are asked, of inquiring whether they could suggest some manner of obtaining the money and getting it into the Treasury.

Mr. MARLATT. I expect to pay a part of this myself, Mr. McLaughlin. My tax has been increased four or five times since the war began.

Mr. McLAUGHLIN of Michigan. That is a better answer than some of the gentlemen have made.

The CHAIRMAN. What are you going to do with the \$50,000 under item 21, page 268?

Mr. MARLATT. Item 21 provides an appropriation of \$50,000 "to enable the Secretary of Agriculture to meet the emergency caused by the establishment of the potato wart in eastern Pennsylvania, and to provide means for the extermination of this disease in Pennsylvania or elsewhere in the United States in cooperation with the State or States concerned, including rent outside the District of Columbia, employment of labor in the city of Washington or elsewhere, and all other necessary expenses."

An appropriation of \$50,000 was given for the current fiscal year and we would like to have the same sum for next year.

The CHAIRMAN. What progress have you made with that?

Mr. MARLATT. This potato disease is limited to a few districts. We have had the whole United States surveyed from Maine to California in cooperation with the several States. This survey has followed the crop from the South northward, and as a result this disease has been found only in Pennsylvania and in West Virginia. Those two States contain apparently all the disease that is in the United States. The area in Pennsylvania has been doubled. But the situation is worse than that would indicate because the new area is in the western part of the State. It is not an enlargement of the old area. Practically all the infestations are in mining districts. Much of the big importation of potatoes in the winter of 1911-12, before we had a plant quarantine act, went to mining districts. They were a poor grade of potatoes, imported to be sold at a low price, and went in the main to places where a cheap potato could be sold, but they were also pretty widely distributed throughout the United States. One very encouraging fact has developed in the course of the work, viz, that several of our principal varieties of potatoes are immune to the disease. One of these varieties is the Irish cobbler, which is one of the important varieties grown in this country. Two or three other important varieties of potatoes are not affected by the disease, as determined by plantings made in diseased ground.

The CHAIRMAN. The remedy is in getting disease-resistant potatoes?

Mr. MARLATT. That will be the remedy if we can not exterminate the disease. An earnest effort to exterminate the disease is being conducted in cooperation with the States of Pennsylvania and West Virginia.

The CHAIRMAN. What are the States doing, anything along this line?

Mr. MARLATT. They are doing more than we are.

The CHAIRMAN. How much are they appropriating?

Mr. MARLATT. I do not remember the amount, but I believe the State of Pennsylvania appropriated \$50,000. Moreover, Pennsylvania has devoted practically its entire agricultural service to it, and is taking means to strengthen the efforts to clean out the disease, stopping the growing potatoes, and controlling even the carrying of manure out of the infested district. It is a soil disease and may be carried by manure or soil of any kind. The State of Pennsylvania through its very efficient service is doing a thorough piece of work.

The CHAIRMAN. Do you treat the soil?

Mr. MARLATT. Various means of treating the soil have been tested. The main method, however, has been by the elimination of potato growing; and hereafter the growth of potatoes in these districts will be restricted to the varieties which are believed to be absolutely immune. The fact of the discovery of these immune varieties of potatoes has taken away a great deal of the fear which this disease first raised in the minds of potato growers. You will perhaps remember that the potato wart was one of the diseases which brought about the passage of the plant quarantine act and that a quarantine against it was specifically authorized in that act.

The CHAIRMAN. If proper seed potatoes are provided, will there be any need of treating the soil?

Mr. MARLATT. Except that it would be desirable, if possible, to exterminate the disease altogether.

The CHAIRMAN. Would not that exterminate the disease?

Mr. MARLATT. The scientific phases of the problem have not been fully worked out. We know that the disease will remain in the soil without potatoes for seven or eight years, but whether it will attack other plants is, so far, on a negative basis only.

Mr. McLAUGHLIN of Michigan. How was the soil treated?

Mr. MARLATT. It was disinfected by steam and by impregnation with corrosive sublimate. I think these were the principal methods of value.

Mr. McLAUGHLIN of Michigan. Both of those would be quite expensive.

Mr. MARLATT. The efficiency of disinfecting has been established, but its cost is heavy.

The CHAIRMAN. How destructive is this wart?

Mr. MARLATT. On varieties of potatoes which it infests freely it may destroy practically the entire crop.

The CHAIRMAN. Does the wart make the potato deteriorate?

Mr. MARLATT. The potato turns into an unrecognizable black fungoid mass.

The CHAIRMAN. Is the crop a total failure in those instances?

Mr. MARLATT. Practically all potatoes attacked are destroyed. The failure of the crop depends on the percentage of infestation, which ranges all the way from nothing to 100 per cent, in different fields.

Mr. McLAUGHLIN of Michigan. Is this spreading by the manure by reason of the stock eating the potatoes affected?

Mr. MARLATT. No; it is simply carried mechanically by the manure.

Mr. McLAUGHLIN of Michigan. How does it get into the manure unless the animals have eaten the affected crop? You spoke of it being carried in manure.

Mr. MARLATT. What I intended to say was that the State was controlling the manure, because the disease may be carried by the manure. It is true that potatoes may be fed to hogs, or potato vines may be thrown on the manure pile to weather down to compost. Such manure might carry the disease with it. There is a similar risk even with farm utensils not fully cleaned.

Mr. McLAUGHLIN of Michigan. I can see how that might happen, but something was said about the disease destroying the potatoes so that they could not be used.

Mr. MARLATT. They might be thrown on the manure pile.

The CHAIRMAN. How about item 22, on page 169, "That the plant quarantine act, approved August 20, 1912, be, and is hereby amended," etc.?

Mr. MARLATT. Yes; this was before you last year and was favorably reported by your committee and by the Senate committee. I refer to the amendment of the plant quarantine act giving authority for control work on plant diseases and pests in the District of Columbia.

The CHAIRMAN. It is extending it to the District of Columbia?

Mr. MARLATT. In the matter of local control; yes. There is no question about the desirability of this amendment. There is no opposition to it that I know of. The enforcement will cost very little, and no additional funds are being requested. It can be enforced under the general administration fund. But it is authority that we should have in the District to do for the District exactly what all the States are doing for themselves. The District of Columbia is the only place in the United States where diseased or insect-infested plant material may come as domestic or foreign shipments and remain without control. We have no authority to prevent their coming in, to clean up or disinfect such shipments, or to prevent their going out after they get in. There is noted in the explanation of this amendment in the estimates an important instance of a pest (the oriental fruit moth), which came into the District of Columbia and has spread through this District and from this District has invaded half a dozen States, and we have no authority here to control a single plant or tree with respect to it.

Mr. McLAUGHLIN of Michigan. I should think you would have authority.

Mr. MARLATT. It is a necessary authority, which should be given. This committee has once favorably reported on it. I suppose it went out on the ground that it was new legislation.

The CHAIRMAN. Do you recall whether it went out on a point of order?

Mr. HARRISON. It was eliminated through a point of order on the floor of the House. The Senate reinserted it, it went to conference, but was rejected by the conferees. Both committees were in favor of it.

The CHAIRMAN. This committee reported it to the House and it went out on a point of order; it was reinserted in the Senate, went to conference, and was rejected in conference?

Mr. HARRISON. Yes.

The CHAIRMAN. Is that all, Doctor?

Mr. MARLATT. I think that concludes the estimates for the Federal Horticultural Board.

Mr. McLAUGHLIN of Michigan. Under the act I understand the District of Columbia stands by itself. You can forbid entrance of infested plant material into the United States from any foreign country; you can forbid the passage from one State to another; but you can not forbid the entrance into the District of Columbia from any State or from a foreign country, and can not forbid the taking of anything from the District of Columbia to another State?

Mr. MARLATT. No; the plant quarantine act now includes the District of Columbia, but gives no local powers such as the States exercise supplemental to the Federal powers under the act. Under the act all foreign importations may now be controlled, but there is at present no law or authority, except by a general quarantine, under which the movement of diseased or insect-infested nursery stock and other plants and plant products into the District of Columbia from surrounding or other States, or from the District of Columbia into surrounding or other States, can be controlled, nor is there authority for the control and extermination within the District of Columbia of plant pests and diseases.

Mr. ANDERSON. You have no control after it gets in?

Mr. MARLATT. No.

Mr. McLAUGHLIN of Michigan. Have you not authority to prevent passage into the District of Columbia?

Mr. MARLATT. No; except by a general quarantine of all the States and of all plants in relation to the District of Columbia—an unnecessary and impractical and expensive method; and we have no authority to enforce such quarantine or do any necessary work within the District.

Mr. McLAUGHLIN of Michigan. A moment ago you suggested, as I understood it, that you could not prevent these infested plants from crossing the line into the District of Columbia nor passing from the District of Columbia into the States, but you say you could do that by the expenditure of a large amount of money. If this is enacted into law, how do you propose to control it?

Mr. MARLATT. I perhaps gave you the wrong impression, Mr. McLaughlin. The quarantine act authorizes the Secretary of Agriculture to prohibit interstate movement for some specific reason, which must be indicated. Under that authority we could prohibit, for example, the movement of potatoes out of Maryland into the District of Columbia if we knew that in Maryland there was a potato disease. But if there was no such disease, we could take no action. Such prohibition of movement may rarely be necessary, but we want authority to inspect material when it is deemed necessary either as a condition of entry or after the material has entered. We want authority if something gets in like this peach moth, for example, to control it; and we want authority, furthermore, to prevent the sending out of the District of Columbia of diseased plants. Such authority we now lack.

The CHAIRMAN. Practically every State has enacted such laws as a protection against the importation of these things, but similar action has not been taken in the case of the District of Columbia.

Mr. MARLATT. Every State has such laws.

The CHAIRMAN. You want an act to protect the District of Columbia just as the States protect themselves?

Mr. MARLATT. That is the idea exactly.

The CHAIRMAN. Is that all?

Mr. MARLATT. That is all.

The CHAIRMAN. We are very much obliged to you, Mr. Marlatt. (Thereupon the committee proceeded to take up another matter.)

Activities under lump-fund items, Federal Horticultural Board.

Project.	Allotment, 1920.	Estimate, 1921.	Increase.
Enforcement of plant-quarantine act:			
(a) Administration.....	\$5,000	\$5,000	.....
(b) Control of entry of plants and plant products under regulation and enforcement of foreign plant quarantines, including port inspection.....	42,250 450	142,250 450	\$100,000
(c) Plant-quarantine investigations.....	47,700	147,700	100,000
Extermination of potato wart.....	50,000	50,000	.....
Total.....	97,700	197,700	100,000

¹ Includes \$2,250 transferred to statutory roll.

COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Wednesday, January 14, 1920.

The committee met pursuant to taking of recess, Hon. Gilbert N. Haugen (chairman) presiding.

The CHAIRMAN. Do you wish to be heard next, Dr. Haywood?

ENFORCEMENT OF THE INSECTICIDE ACT.

STATEMENT OF DR. J. K. HAYWOOD, CHAIRMAN OF THE INSECTICIDE AND FUNGICIDE BOARD, DEPARTMENT OF AGRICULTURE.

Dr. HAYWOOD. Mr. Chairman. I suppose the committee is familiar with the purposes of the insecticide act. It is an act designed to control the manufacture, sale, and transportation of insecticides and fungicides and prevent the shipment in interstate commerce, importation, or exportation of misbranded and adulterated insecticides and fungicides.

During the fiscal year ending June 30, 1919, the inspectors of the Insecticide and Fungicide Board collected 904 official samples of insecticides and fungicides (including disinfectants) for subsequent analysis and test by the scientists of the board to determine whether or not such samples were in conformity with the provisions of the insecticide act of 1910. The board reported to the solicitor of the department 104 cases presenting alleged violations of the insecticide act, with the recommendations that the facts be transmitted to the Attorney General to institute criminal action or seizure proceedings. Disposition was made of 129 cases by correspondence with manufacturers. Action was taken to place in abeyance 621 samples, which

upon examination and test were shown to be in compliance with the provisions of the act or were from shipments of the same goods made prior to shipments for which the manufacturer had been convicted and had after citation conformed to the requirements of the law.

During the year 41 official and unofficial samples of import insecticides and fungicides were collected for examination and test, and disposition was made of 43 such samples. Sixteen were found to be adulterated or misbranded, or both, and appropriate action was taken under the provisions of the act. Twenty-seven samples were found to be neither adulterated nor misbranded.

While these statistical figures will give you some idea of the volume of work conducted by the board, you will probably be more interested in some of the principal cases of adulteration and misbranding found to exist and the steps taken to combat same.

You are doubtless familiar with the work that is being performed in the South by Mr. Coad, of the Bureau of Entomology, to find means of combating the cotton boll weevil. Mr. Coad has found that the application of calcium arsenate under certain conditions gives quite efficient control, but it is very essential that the calcium arsenate be of a certain standard quality—that is, it must contain a certain amount of arsenic oxid to be effective against the weevil; it must not contain enough water-soluble arsenic oxid to burn the plant, and it is highly desirable that it have a certain density, so as to make a satisfactory dust cloud.

During the past year a very large quantity of calcium arsenate was shipped into the South for this work, and the board was requested by Mr. Coad to aid him in keeping off the market all calcium arsenate that was not up to standard or which contained enough water-soluble arsenic oxid to cause it to injure the cotton plants. Because of the great importance of this project the board decided to give all the help it could to Mr. Coad. Mr. Coad circularized the cotton-growing section of the South and offered to make analyses of calcium arsenate before it was sold by retailers or used by farmers. Our chemist made all these analyses and Mr. Coad reported to the farmer and retailer whether the product should be used. The board also sent an inspector to this region to collect official samples of all of the calcium arsenate he could find for examination to determine whether it was in conformity with law. A large amount of material which was adulterated or misbranded, or both, was seized, and in some cases action was also taken against the manufacturer under the provisions of the insecticide act.

In addition to our work on calcium arsenate, the board found that some manufacturers of pyrethrum insect powder were adulterating their product. Since the war pyrethrum insect powder has increased in value to a very large extent. This has caused manufacturers to adulterate, and they have been using field daisies as adulterants. Field daisies are inert, but they look like pyrethrum. Seizures were made and action taken against certain manufacturers, with the result that this practice appears to have been materially reduced.

The campaign against disinfectants, which we have been carrying on for several years, has been extended. We have done a great deal of work along this line and made a great many prosecutions of disinfectant manufacturers during the year. That, of course, is very

important because of the fact that, if a disinfectant does not do what it is supposed to do, the disease will go ahead unchecked.

A campaign was also started against shipments of Bordeaux mixture and other fungicides containing Bordeaux as one of the constituents, which shipments bore such faulty directions that if the directions were followed the products would not control the diseases for which they were recommended to be used. By action under the law against manufacturers, by correspondence, and by the publication of correct data, a decided improvement was brought about in the labeling of this class of products.

Other instances of adulteration and misbranding were encountered and handled under the provisions of the act, but the above represent the four most important campaigns carried on during the year.

The Insecticide and Fungicide Board has requested that its lump-sum appropriation be increased by \$17,970 to carry on its work successfully during the coming fiscal year. This sum will allow of the appointment of two additional chemists, one plant pathologist, one entomologist, one veterinarian, one chemist aid, and one inspector, and will provide for the expenses of these new assistants, and also allow \$500 for the replacement of worn-out apparatus.

The need for this extra sum to pay the salaries and expenses mentioned above may be explained as follows:

The insecticide act of 1910 became effective January 1, 1911. For the first full year of its operation, the total appropriation for enforcing the law amounted to \$87,000. For the present fiscal year the total appropriation available for enforcing the act is \$123,940. During the period the law has been in force the insecticide industry in the United States has increased fully 100 per cent; we believe more than that. Therefore, our appropriation for controlling this industry has not kept pace with its growth, and we can not effectively regulate the industry unless there is a material increase in our appropriation.

Again, if we help Mr. Coad in the South this year, the work entailed will be a great deal more extensive than it was the past year, because of the increased output of calcium arsenate. While about 3,000,000 pounds were shipped last year, there will be much more—probably in the neighborhood of 10,000,000 pounds—shipped this year. We have found that a good many insecticide manufacturers who have not heretofore engaged in the production of calcium arsenate are going into its manufacture. This will mean that much adulterated and misbranded goods will come on the market, because new manufacturers often go wrong in their processes and in labeling. In order to take care of that we will need more help.

The CHAIRMAN. Is that manufactured in this country or imported?

Dr. HAYWOOD. It is all manufactured in this country. It is not manufactured anywhere else. It is a new product, manufactured in the past three years. It was discovered by the Bureau of Chemistry and exploited by the Bureau of Entomology.

Since the insecticide act of 1910 became effective, the use of dusting materials in the control of insects and plant diseases has greatly developed and to a considerable extent has superseded the use of liquid sprays. At the present very little is known, and decidedly contradictory results have been obtained in respect to the

dust applications. It has, therefore, become necessary for the board to make many basic investigations relative to dust applications, as well as tests of various dusts which appear on the market, to determine whether or not they will do what is claimed for them. Such work can only be carried out by collaborative work of the entomologist, plant pathologist, and chemist, and it is impossible for us to carry on this needed work with our present appropriation.

As we have gained experience in the enforcement of the insecticide act, we have realized keenly the necessity for a more precise knowledge of the insecticidal qualities of some of the ingredients entering into the composition of certain preparations used on horses, cattle, sheep, goats, and swine, as well as a deeper insight into the therapeutic action of some of the drugs used in the treatment of various animal diseases. Much information along this line may be obtained by the board through the experts of the Bureau of Animal Industry, but the additional assistance of a widely informed veterinarian is practically an essential to the proper conduct of such investigations—one whose entire time may be devoted to it, working under the eye of an adviser especially qualified along the line under study.

It is necessary in the enforcement of the insecticide act to make many tests of commercial insecticides and fungicides in other localities than Washington. This means that it is necessary to hire orchards and truck patches, buy fertilizers for the same, and employ labor to cultivate them. The cost for such labor and for other operating expenses has greatly increased during the past two years, so that extra money is needed for this purpose.

Finally and possibly most important of all, it is especially important that the board make more use of the seizure section of the insecticide act, since such section allows us to withdraw from the market insecticides and fungicides which will not do what is claimed for them or will be injurious to vegetation. To make seizures requires, first of all, a large amount of inspection work, and, second, more chemical and testing work. To make effective use of the seizure section of the act we are of the opinion that it will be necessary to have the increased funds requested in this estimate.

Mr. YOUNG. I want to ask this question: Suppose a certain remedy is being advertised to do certain work, and you have no reason to know whether it is effective or not. I am curious to know how you would go about getting these samples in order to make your test to find out the facts.

Dr. HARWOOD. Here is the way we do that: Our inspectors are operating in the field. In the absence of specific instructions the inspectors have general directions to collect any insecticide or fungicide samples that they come across. We will suppose, however, that you have written in to us and informed us that there is a certain insecticide or fungicide that you do not think will do what is claimed for it. All right; we have our inspector collect samples of that.

Mr. YOUNG. How do you get that? Do you go to the factory?

Dr. HARWOOD. No; we buy it on the open market, because the law says that the material must have entered into interstate commerce. We must be able to show by shipping records and an invoice that the product entered into interstate commerce before we have any jurisdiction. If we do not have jurisdiction the State would have. We only have jurisdiction in interstate commerce. It must be a prod-

uct that has left the factory except in the case of goods manufactured in the District of Columbia or the Territories. We usually collect a number of samples.

Mr. YOUNG. You do not go to the factory and give them an O. K. of any particular remedy?

Dr. HAYWOOD. No.

Mr. YOUNG. But when reports come in to you that the thing is found to be a fraud, then you pick these things up and make your analyses and investigations?

Dr. HAYWOOD. Yes, sir.

Mr. YOUNG. Probably this does not come under your department, but just as I got home recently a remedy for the prevention of diphtheria had been promulgated by a wholesale manufacturing drug firm. I believe they called it an antitoxin.

Dr. HAYWOOD. That would come under the food and drugs act as to whether the claims made on the label were in accordance with the facts.

Mr. YOUNG. Is that administered by your department?

Dr. HAYWOOD. The food and drugs act is administered by our department but not by the Insecticide and Fungicide Board.

Mr. YOUNG. A diphtheria scare broke out in my little town and in the city of Dallas and some of the adjacent cities, and the authorities wired to the concern which manufactures this preventive for a supply of same. They sent this remedy in there and it was administered to perfectly well children, and when the reaction came a great number of those children died—some of them instantly. When the agent for these people was asked for an explanation, he claimed that the manufacture of this product was under Government inspection. That was the point I wanted to get clear in my mind.

Dr. HAYWOOD. Mr. Harrison, is there not in the Hygienic Laboratory some control of antitoxins?

Mr. HARRISON. Yes, a branch of the Public Health Service. It deals with antitoxins used on human beings. There is a Federal law, I understand, under which it acts.

Mr. YOUNG. What I want to get at is this: Does the Government send out people in advance to inspect this remedy at the factory, or do they wait until after the damage is done and then make an inspection?

Dr. HAYWOOD. I can not tell you about such things as drugs, because they do not come under me at all. I can only state about insecticides and fungicides.

Mr. HARRISON. We inspect the factories where viruses, serums, and toxins for use on animals are manufactured.

Mr. McLAUGHLIN of Michigan. Not for human medicines?

Mr. HARRISON. That is under the Public Health Service. We inspect only the establishments preparing the serums and toxins used in combating animal diseases.

The inspection is made at the plants and every batch that is manufactured for shipment in interstate or foreign commerce is inspected to determine whether the product is potent, whether it will accomplish its purpose, and whether it is harmless. If it is found to be worthless, contaminated, or harmful, it is promptly condemned.

Mr. YOUNG. What really happened in the case of that particular remedy that they did not have the proper balance between the toxin and the antitoxin.

Mr. HARRISON. The insecticide act operates along lines similar to the food and drugs act. It would not be possible to furnish inspection for the plants which manufacture insecticides and fungicides, but we do that in the case of the establishments which manufacture serums, toxins, and analogous products for the treatment of animal diseases.

The CHAIRMAN. Do your activities extend all over the country?

Dr. HAYWOOD. Yes, sir.

The CHAIRMAN. You collect samples from each section of the country?

Dr. HAYWOOD. Yes, sir.

The CHAIRMAN. To what extent do you cooperate with the Bureau of Chemistry in the enforcement of the food and drugs act?

Dr. HAYWARD. Our own inspectors collect our own samples, except in cases where samples of a particular product are specially desired and where our inspector does not happen to be in the place where it can be obtained, and we then write to the Bureau of Chemistry and ask if they will have their inspector collect the sample for us.

The CHAIRMAN. It occurs to me that your two branches ought to cooperate in the collection of samples.

Dr. HAYWOOD. They do to a very considerable extent.

The CHAIRMAN. We are very much obliged to you, Dr. Haywood.

Activities under lump-sum item, enforcement of the insecticide act.

Projects.	Allotment, 1920.	Estimate, 1921.	Increase.
Administration, including inspection and collection of samples.....	\$14,591	\$17,791	\$3,200
Expenses incident to trial of cases.....	¹ 11,000	¹ 11,000	.....
Chemical, microscopic, and bacteriological examination of insecticides and fungicides (including disinfectants) other than those used on horses, cattle, sheep, swine, or goats.....	39,386	43,126	3,740
Testing of efficacy of fungicides and action on foliage of insecticides and fungicides.....	11,862	13,662	1,800
Testing of efficacy of insecticides and their action on foliage.....	11,798	14,598	2,800
Chemical and bacteriological examination of insecticides and fungicides used primarily on horses, cattle, sheep, swine, or goats, and efficacy tests of same.....	6,663	11,383	44,730
Total.....	94,790	² 111,560	² 17,970

¹ Each year the Insecticide and Fungicide Board sets aside a sum of \$11,000 for expense incidental to the trial of cases in court. It is not desirable to use any of this sum for current expenses, but the liability must remain set up until the very end of the fiscal year, since it is impossible to determine when a large part of the money will be needed for the trial of one or more important cases. As a consequence, it is necessary to refund a considerable portion each year to the Treasury, with the result that the board does not have the use of the money for current operations, and the appropriation is therefore to all intents and purposes nearly \$11,000 less than it appears on paper.

² Includes \$1,200 transferred to statutory roll.

**COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES.**

MISCELLANEOUS.

DEMONSTRATIONS ON RECLAMATION PROJECTS.

(See statement of Dr. William A. Taylor relative to this item under the Bureau of Plant Industry section of these hearings.)

FIGHTING AND PREVENTING FOREST FIRES.

(See statement of Mr. Henry S. Graves relative to this item under the Forest Service section of these hearings.)

AFTERNOON SESSION.

THURSDAY, DECEMBER 18, 1919.

**COOPERATIVE FIRE PROTECTION OF FORESTED WATERSHEDS OF NAVIGABLE
STREAMS.**

**STATEMENT OF MR. HENRY S. GRAVES, FORESTER AND CHIEF
OF THE FOREST SERVICE, DEPARTMENT OF AGRICULTURE.**

The CHAIRMAN. Have you any items other than the one for fighting and preventing forest fires, which we have discussed?

Mr. GRAVES. That was discussed this morning.

There is an item on page 272, item No. 3, "for cooperation with any State or group of States in the protection from fire of the forested watersheds of navigable streams," etc. There was appropriated in 1911, for the period from 1911 to 1915, \$200,000. That was the Weeks act of March 1, 1911, which appropriated \$200,000 for cooperation with the States in protection from fire. In 1915 the first annual appropriation was made, and this item has been continued from year to year in the annual appropriation bills. I am suggesting an addition to that of \$100,000 to extend this work, so as to increase the contributions to the individual States that are now cooperating and to enable us to cooperate with other States which have not yet qualified. We are now cooperating with 24 different States, to which we make contributions in varying amounts up to \$7,000 a year. The original law carried the provision that the States should appropriate at least as much as the Federal Government.

The value of this work has been in educating and stimulating States to undertake fire-protection work; a number of States have undoubtedly undertaken that as a direct result of this work, and others have extended their own appropriations and their own activities.

The CHAIRMAN This has reference to the Weeks Act exclusively!

Mr. GRAVES. This has reference to the Weeks Act only in that the initial appropriation was a part of the original Weeks law.

The CHAIRMAN. Is it confined to the States where you have acquired lands under the Weeks law?

Mr. GRAVES. No, sir.

The CHAIRMAN. It applies to the whole country?

Mr. GRAVES. To the whole country; yes.

The CHAIRMAN. The Federal Government cooperating with the States?

Mr. GRAVES. Yes, sir.

Mr. JONES. With how many States are you now working in co-operation?

Mr. GRAVES. Twenty-four.

Mr. JONES. How many States did you have right after the appropriation was made?

Mr. GRAVES. In the calendar year 1911 there were 11 States and in 1915 there were 20 States with which we cooperated.

Mr. JONES. Your appropriation has not increased?

Mr. GRAVES. No, sir.

Mr. JONES. And you have diminished the amount for each State?

Mr. GRAVES. Yes, sir.

Mr. JONES. As the number of States increased you have had a less amount for each State?

Mr. GRAVES. Yes, sir; also the cost of fire protection has increased probably 25 to 50 per cent.

Mr. JONES. If you had \$100,000 available for 20 States in 1915 and still have \$100,000 for 24 States, you have a less amount for each State, haven't you?

Mr. GRAVES. Yes, sir; we have reduced the amount in practically every State.

Mr. McLAUGHLIN of Michigan. During the last year, when the loss from fire was so large, was there much loss from fire in the Appalachian country, where the Weeks Act operates?

Mr. GRAVES. No, sir; we did not have a severe season in the East.

The CHAIRMAN We will take up the next item.

AFTERNOON SESSION.

WEDNESDAY, JANUARY 14, 1920.

The CHAIRMAN. What is next, Mr. Harrison?

Mr. HARRISON. Mr. Chairman, there are two other items on pages 273 and 274. One of these relates to experiments and demonstrations in connection with the development of live-stock production in the cane-sugar and cotton districts and the other to experiments in dairying and live-stock production enterprises in the semiarid and irrigated districts of the western United States. There is no change

in either of these items and I do not know whether the committee wishes to have them discussed. If so, Dr. Taylor will be glad to give you any information you may desire.

Mr. ANDERSON. We would like to know whether you can dispense with some of the money.

The CHAIRMAN. Would it cripple the work if we were to cut it in half?

Mr. HARRISON. I will ask Dr. Taylor to answer that question.

The CHAIRMAN. Very well, Dr. Taylor.

STATEMENT OF DR. WILLIAM A. TAYLOR, CHIEF OF THE BUREAU OF PLANT INDUSTRY, DEPARTMENT OF AGRICULTURE.

EXPERIMENTS AND DEMONSTRATIONS IN LIVE-STOCK PRODUCTION IN THE CANE-SUGAR AND COTTON DISTRICTS OF THE UNITED STATES.

Dr. TAYLOR. Possibly it may help the committee in that matter to know that \$22,000 was returned to the Treasury from the sale of products produced in the experimental phase of this activity in Louisiana last year, and practically the same amount the year before, so that the net expenditure there—the net cost to the Treasury under the appropriation—is about \$38,000 instead of \$60,000. We, of course, could not get along, however, without that margin, because we have to buy feeders and to some extent feed. We shall have to do this during the coming year, for there has been a very unfavorable crop season in Louisiana due to the prolonged and extremely heavy rains.

The CHAIRMAN. Does this work come under your bureau?

Dr. TAYLOR. No, sir; this really should be discussed by Mr. Rawl, but he is out of the city, and, as I am somewhat familiar with the work, I came over.

Mr. ANDERSON. Doctor, I notice that some \$13,500 of the \$60,000 is proposed to be used for new construction.

Dr. TAYLOR. The construction work is noted at the foot of page 273. The first item is a wooden silo at the stock farm, at an estimated cost of \$600.

Mr. TINCHER. How big a silo is that?

Dr. TAYLOR. The dimensions are 14 by 36 feet, containing 5,542 cubic feet, at 10.8 cents a cubic foot. This is to supplement the battery of silos already there, as one of the main features of the work at the farm is a comparison of the different forage crops in the form of silage. It may refresh your recollection to remember that this work was planned some years ago in an effort to determine with some definiteness whether live-stock production can be profitably developed in a practically one-crop country—the cane-sugar belt—which has been dependent on the ups and downs of sugar, both as to yield and as to price, and has had a very fluctuating experience. Apparently the key to live-stock production there is going to be the question whether a silage and pasture element in the maintenance of the live stock can be developed that will be comparable with the silage and pasture elements in the more northern country.

Mr. McLAUGHLIN of Michigan. What do they put into the silos there?

Dr. TAYLOR. We are trying, in the first place, cane tops, which is a waste product of cane-sugar production—that is, the tops and leaves, both straight and in combination with such crops as corn, soy beans, and to some extent cowpeas; Japanese cane, which is a type of cane not extensively grown in this country heretofore for sugar or sirup, though beginning to be grown for sirup production, and the saccharine sorghums. The nonsaccharine sorghums do not thrive in that country of heavy rainfall.

Mr. TINCHER. Do you think it is well for the Government to spend \$600 on a silo of that size? If the farmers were to get an idea that it cost the Government such a figure it would discourage them.

Dr. TAYLOR. The intention is merely to have a good, durable silo which will hold the silage in such condition that it will be of experimental value.

Mr. TINCHER. Do you know what kind of wooden silos they have on the farm now?

Dr. TAYLOR. I can not tell you whether they are built of cypress or not, but my impression is that they are made of cypress; there are also two or three concrete silos. My impression is that there are one or two wooden silos and that they are of cypress.

Mr. TINCHER. The way to get the farmers to build silos is first to demonstrate to them that they can have a silo without going bankrupt. I am in sympathy with the silo proposition, but it is not necessary to spend so much money to build a silo. Tell them to take some 4 by 4's and set them upright and then just line it inside with good flooring in circular form—set it in a circle. They can build a silo, with high-priced material, at 70 cents a ton. This silo that you have described would cost about \$100, maybe \$105, at the present high prices for material. That is the way to encourage farmers to build silos. No farmer would want to spend \$600. I have built silos every year for 15 years, and it is not a good thing to get the farmer to spend five or six times as much on a silo as he ought to spend.

Dr. TAYLOR. These are being built definitely with a view to durability and to tightness and efficiency from the experimental standpoint.

Mr. TINCHER. The kind I spoke of is more durable than the average. It is not as durable as the ones that the Government builds for \$600, of course, but it is built for durability.

Dr. TAYLOR. The next item of construction is an extension to the beef cattle barn, to be one-story, frame, with prepared roofing (that is, a fireproof roofing, which is considered advisable—*asbestos shingle roofing*), containing 34,500 cubic feet, at approximately 7 cents a cubic foot, \$2,400. These are the figures current in that section.

The CHAIRMAN. Can it be built for that?

Dr. TAYLOR. Unless there is a material increase beyond the prices that prevailed in October. Of course, this work will not be undertaken before next July. This is our best guess on the material and labor situation at that time.

The CHAIRMAN. You estimate \$1,000 for two lean-to sheds.

Dr. TAYLOR. Yes. That covers two lean-to frame sheds, each 20 by 134 feet, at 2.3 cents per cubic foot to broaden the existing building. As the structural material there is much lighter there will be a lower cost.

One-horse barn, 48,960 cubic feet, at 7.2 cents per cubic foot, \$3,500. That is the most expensive single item.

The CHAIRMAN. That is 7.2 cents?

Dr. TAYLOR. Yes. These figures were, I think, furnished by our architects.

The CHAIRMAN. The next are six Negro cabins.

Dr. TAYLOR. Yes; one-story frame buildings containing 5,460 cubic feet each, at 11 cents per cubic foot. It has been found increasingly necessary to house Negro labor on the place in order to hold competent help.

The CHAIRMAN. Who holds the title to this land?

Dr. TAYLOR. The title to this land rests in the State of Louisiana, which by act of its legislature authorized the board of control of the State penitentiary to convey it to the Federal Government for this use for so long a time as it may be needed.

The CHAIRMAN. Was no specific time mentioned?

Dr. TAYLOR. No; so long as needed; no specified time was stated.

The CHAIRMAN. It is impracticable to go on and spend a lot of money on other people's land. Would it not be better for the Government to purchase the land and own it?

Dr. TAYLOR. I hardly think so in this case, unless it is desirable to invest a good deal of capital in land there. There are 500 acres held in that way, and we have the use of approximately an equal acreage adjacent to it, owned also by the State.

The CHAIRMAN. It seems to me that we ought to have title to land where we put up expensive buildings on it.

Dr. TAYLOR. That is the exact situation here. The land is a part of the State plantation upon which one of the State penitentiaries is built, and still stands, and which is operated by the State as a sugar and rice plantation.

The CHAIRMAN. Do they turn it over to the Government free?

Dr. TAYLOR. Yes, sir.

The CHAIRMAN. The whole plantation?

Dr. TAYLOR. Yes, sir; these 500 acres.

The CHAIRMAN. How much have we spent on buildings up to this time?

Dr. TAYLOR. I shall have to have a statement prepared for insertion in the record to show that.

The CHAIRMAN. When we first went into this, the suggestion was that the State should furnish the land.

Dr. TAYLOR. Yes, sir.

The CHAIRMAN. It was not understood that we were going to put buildings on land owned by others.

Dr. TAYLOR. Yes, sir; the land is owned by the State of Louisiana.

The CHAIRMAN. It was never understood that we were to put buildings on land owned by others.

Mr. McLAUGHLIN of Michigan. Ordinarily that is forbidden by law.

Dr. TAYLOR. The question of the legality of this was passed upon by our department solicitor, and my impression is that it was passed upon by the Attorney General, and the act of the Louisiana Legislature was regarded as protecting the Government sufficiently.

The CHAIRMAN. That did not give the Federal Government authority.

Will you furnish us with a statement of the money expended for buildings there, and also a copy of the act of the State Legislature!

Dr. TAYLOR. Yes, sir; I can do that. I have also a summary of the live-stock work in Louisiana, which I can insert.

(The statements referred to follow:)

Copy of act No. 252 of the General Assembly of the State of Louisiana, authorizing (in sec. 8) the board of control of the State penitentiary to dedicate certain portions of the State plantations to the United States Government (act approved by governor of Louisiana July 9, 1914):

[Act No. 252. By Mr. Butler and Senator Burke.]

AN ACT To authorize the penitentiary board to establish and maintain demonstration farms, both agricultural and stock raising, on Monticello, Oakley, and Hope plantations; to prohibit the sale of at least 500 acres of land on each of said plantations; to name said demonstration farms; to authorize the board of control to purchase live stock and the equipment and operation of said farms; to employ scientific and expert help; to provide for the keeping of records and the publication of bulletins; to authorize the sale and disposition of stock or farm products, equipment, etc., in the regular order of administration; to make an appropriation to aid in accomplishing the purposes of this act; to authorize the dedication of certain portions of said plantations to the United States Government; and to prescribe the terms and conditions thereof.

SECTION 1. *Be it enacted by the General Assembly of the State of Louisiana,* That the board of control of the State penitentiary shall establish and maintain on Hope plantation, Oakley plantation, and Monticello plantation a general system of demonstration of agricultural and stock-raising operations, to which at least 500 acres of land on each of said properties should be dedicated from the area of each of said properties; and the said board of control may, in its discretion and to meet the requirements of the purposes herein set forth, increase said area. And no portion of said land so dedicated shall be sold by the governor of the State by virtue of the authority of any legislative act now permitting the same.

SEC. 2. *Be it further enacted,* That the properties so dedicated shall be known and designated as the "State demonstration farm at Hope" and the "State demonstration farm at Monticello" and the "State demonstration farm at Oakley."

SEC. 3. *Be it further enacted,* That the said board of control shall purchase and maintain on said demonstration farms such live stock and shall engage in such general farming and agricultural operations as in its judgment will best demonstrate the proper operation of agricultural and stock farms in the respective sections in which they are located; and to this end it shall as rapidly as possible equip and maintain on said properties modernly equipped farm and stock implements, fixtures, and buildings, and in general do such things as will be required to make effective the provisions of this act.

SEC. 4. *Be it further enacted, etc.,* That the said board of control shall have the authority and it shall be the duty to employ such scientific and expert help as it may decide as advisable or necessary.

SEC. 5. *Be it further enacted, etc.,* That the said board of control shall keep an accurate and detailed record of all work, experiments, demonstrations, and enterprises undertaken or conducted by it, which record shall at all times be accessible to the general public; and, further, that it shall at stated intervals issue bulletins advising the public of its operations and the result thereof, and the same to publish either through the press or otherwise.

SEC. 6. *Be it further enacted, etc.,* That the said board of control shall have the authority to market, sell, trade, or dispose of any of the animal or agricultural products of said farms, whether it be for the maintenance thereof or with the aim upon proper and commensurate compensation to aid in the promotion of the agricultural and stock-raising industries of the State.

SEC. 7. *Be it further enacted, etc.,* That there is hereby appropriated from the general fund and to be available to said board with which to inaugurate the work hereinabove authorized the sum of \$25,000.

SEC. 8. *Be it further enacted, etc.,* That in the event the Government of the United States should undertake at any time to establish, keep, and maintain in either of the parishes in which the State farms hereinabove named may be situated any agricultural, cattle, stock, or other demonstration farm or station, for the purpose of promoting in any manner the animal industries or agricultural interests of the people of this State or of any section or portion thereof, and

for the purpose of so doing should require the requisite lands to be given or the use thereof dedicated to it, the board of control of the State penitentiary under the authority of the governor of the State of Louisiana, shall be, and it is hereby, authorized in the name of the State of Louisiana to dedicate and transfer to the Government of the United States under said act, from either or both of the farms herein above named an acreage of not more than that which the said State board of control will have dedicated on either of said farms to the purposes hereinabove set forth or which under the authority herein given it may dedicate; the use and enjoyment thereof to remain with and in the Government of the United States as long as the said land shall be used for the purposes of said agricultural, cattle, stock, or other demonstration farm as above outlined: *Provided*, That in the event of such transfer the board of control of the State penitentiary shall exercise no further rights upon the property so transferred and shall not be required to conduct and operate upon the particular farm or farms thus dedicated to the uses of the United States Government the demonstration work herein first outlined.

SEC. 9. *Be it further enacted, etc.*, That all laws or parts of laws in conflict herewith are hereby repealed.

L. E. THOMAS,
Speaker of the House of Representatives.

THOMAS C. BARRET,
Lieutenant Governor and President of the Senate.

Approved July 9, 1914.

L. E. HALL,
Governor of the State of Louisiana.

A true copy.

ALVIN E. HEBERT,
Secretary of State.

(2) Copy of resolution of board of control of the State penitentiary of Louisiana authorizing C. Harrison Parker, president of the board, to execute in behalf of the board an act of conveyance as authorized by section 8 of act No. 252 of the year 1914 to the Government of the United States of a tract of land consisting of 500 acres, being a part of Hope State farm, situated in the parish of Iberia, dated October 7, 1914:

At a special meeting of the board of control of the State penitentiary, held in its office on October 7, 1914, all members being present, the following resolution was unanimously passed and adopted:

Be it resolved by the board of control of the State penitentiary, That C. Harrison Parker, president, be, and he is hereby, authorized to execute in behalf of the board an act of conveyance as authorized and to the extent only of the authorization conferred thereby by section 8 of act No. 252 of the acts of the General Assembly of the State of Louisiana of the year 1914 to the Government of the United States of a tract of land consisting of 500 acres, being a part of Hope State farm, situated in the parish of Iberia, in contemplation of and pursuant to the act of the Congress of the United States, entitled "An act making appropriations for the Department of Agriculture for the fiscal year ending June 30, 1915," approved June 30, 1914, and more particularly described as follows:

That certain tract of land situated in the parish of Iberia, State of Louisiana, on the east side of Bayou Teche, being a part of the property belonging to the Hope State farm; the rear boundary line being at a distance of 64.84 chains from Bayou Teche; above, by property known as the estate of Albert Olivier; and below, by property belonging to various parties, known as the Little Wood negro colony; the entire tract containing 500 acres, having a frontage of 77.11 chains, all as is more definitely and accurately set forth in the map thereof made by Charles O. Babin, civil engineer, under date of New Iberia, La., August 31, 1914; a blue print of which map is annexed to the act of conveyance hereinabove authorized to be executed and made part thereof, paraphrased "Ne Varletur" for identification.

C. HARRISON PARKER, *President.*
G. A. KILLGORE, *Secretary.*

I, G. A. Killgore, secretary of the board of control of the State penitentiary, do hereby certify that the above and foregoing is a true and correct copy of the

resolution adopted by the board of control of the State penitentiary on this the 7th day of October, A. D. 1914.

G. A. KILLGORE, *Secretary.*

I do hereby certify the foregoing to be a true and correct copy from the original, on file in my office.

L. R. TILLY, *Deputy Clerk of Court.*

Deed of dedication and transfer of portion of Hope State farm to the Government of the United States by C. Harrison Parker, president board of control State penitentiary, and L. E. Hall, governor of the State of Louisiana, October 12, 1914:

STATE OF LOUISIANA, Parish of East Baton Rouge:

Be it remembered that on this 12th day of October, A. D. 1914, personally came and appeared before me C. O. Bird, Jr., a notary public of the above parish and State, C. Harrison Parker, president of the board of control of the State penitentiary, authorized hereunto by a resolution of the said board, a certified copy whereof is attached to and made part of this act, the said board of control acting in the presence in virtue of the authority conferred by section 8 of act No. 252 of the acts of the General Assembly of the State of Louisiana, at its regular session in the year 1914; and also appeared Luther E. Hall, governor of the State of Louisiana, for the purpose of authorizing the board of control hereunto as required by the said act No. 252 of 1914, who declared and acknowledged that in the name of the State of Louisiana they hereby dedicate and transfer to the Government of the United States the right of possession and due of the following-described tract of land, to wit:

That certain tract of land situated in the parish of Iberia, State of Louisiana, on the east side of Bayou Teche, being a part of Hope State farm, bounded in front by Bayou Teche, in the rear of the property belonging to the Hope State farm, the rear boundary line being at a distance of 64.84 chains from Bayou Teche, above by property known as the estate of Albert Olivier, and below by property belonging to various parties known as the Little Wood negro colony; the entire tract containing 500 acres, having a frontage of 77.11 chains, and a depth of 64.84 chains, all as is more definitely and accurately set forth in the map thereof made by Charles O. Babin, civil engineer, under date of New Iberia, La., August 31, 1914, a blue print of which map is hereto annexed and made part hereof, paragraphed Ne Varieutur for identification.

The object of this conveyance and the consideration hereof is the undertaking by the United States, through the Department of Agriculture, of the establishment on the said premises of a farm for experiments and demonstrations in live-stock production pursuant to the terms of the act of the Congress of the United States, entitled "An act making appropriations for the Department of Agriculture for the fiscal year ending June 30, 1915," approved June 30, 1914, and the possession, occupation, and use of the said premises by the United States shall continue so long as the same shall be devoted to the objects and purposes authorized by the said act of Congress.

In testimony whereof, the parties hereunto have subscribed their names, together with D. F. Bacot and A. B. Whitlow, lawful witnesses, and me, the said notary, on the day and date hereinabove first written.

C. HARRISON PARKER,
President Board of Control, State Penitentiary.
L. E. HALL,
Governor of the State of Louisiana.

Witnesses:

D. F. BACOT.
A. B. WHITLOW.

C. O. BIRD, Jr., *Notary Public.*

In addition to the 500-acre portion of the Hope State farm dedicated by the board of control of the penitentiary, it was found advisable to secure a tract of 4.658 acres on the south side of Bayou Teche to furnish a suitable outlet to the main improved highway and upon which to locate two cottages and the bridge house sheltering the tender of a bridge across Bayou Teche, built by the Iberia parish to provide suitable, convenient, and independent access to the

farm. This tract of 4.658 acres, more or less, was conveyed to the United States of America by Leonidas H. Conrad, February 7, 1918, upon payment to him of \$500 in cash furnished by citizens of the parish interested in the adequate and suitable development of the live-stock field station. A copy of this deed as recorded in the office of the clerk of court for the parish of Iberia February 13, 1918, follows:

UNITED STATES OF AMERICA,

State of Louisiana, Parish of Iberia.

Be it known that on this 7th day of the month of February in the year of our Lord 1918, before me, C. M. Compton, a notary public in and for the parish of Iberia, State of Louisiana, duly commissioned and qualified, and in the presence of the witnesses hereinafter named and undersigned.

Personally came and appeared Mr. Leonidas H. Conrad, a married man, whose wife's maiden name was Miss Almee Broussard, a resident of the parish of Iberia, State of Louisiana, who declared and said that, for the consideration, and on the terms and conditions hereinafter expressed, he did and does, by these presents grant, bargain, sell, convey, transfer, assign, set over, and deliver, with all legal warranties, and with a full guarantee against all troubles, debts, mortgages, claims, evictions, donations, allentions, or incumbrances whatsoever, until the United States of America, the tract or parcel of land hereinafter described, to be used by the Department of Agriculture of the United States in conducting experiments and demonstrations in live-stock production in the cane-sugar and cotton districts of the United States, the said United States of America being represented by Mr. J. R. Quesenberry, who, having authority to appear herein, for and in the name and behalf of the United States of America, to be used for homes and necessary outhouses in connection with said farm here present, accepting and purchasing for said United States of America acknowledging delivery and possession thereof, the property of which the following is a description, to wit:

A certain tract of land, situated in the parish of Iberia, State of Louisiana, being a part of section 33 in township 12 south, range 7 east, Louisiana meridian, and more particularly described as beginning at an iron pin on the southerly side of Bayou Teche and other line of the vendor; thence following the meander of said Bayou Teche, approximately south 53 degrees east, 318 feet to an iron pin on the southerly side of Bayou Teche; thence south 40 degrees 30 minutes west, 639 feet to a point on a road designated as model road; thence north approximately 53 degrees west 318 feet to the land of vendor; thence north 40 degrees 30 minutes east, 536 feet to the point of beginning, containing 4.658 acres, more or less; all of said bearings in the foregoing description being turned from the Louisiana meridian.

It is distinctly understood that this sale is made on the expressed condition and with the distinct understanding that the property above described, as herein sold to the United States of America, shall be used for the purposes of conducting experiments and demonstrations of live-stock production by the Department of Agriculture of the United States of America, and that upon said Department of Agriculture ceasing permanently to use said tract or parcel of land for that purpose, the same shall revert to the vendor. It is hereby mutually agreed and understood, however, that the United States of America, the vendee herein, by its officers, agents, and employees, may, upon breach of the conditions above stipulated and within a reasonable delay thereafter, remove or cause to be removed from said tract or parcel of land any and all structures, buildings, and other improvements of any nature or kind whatsoever, which may be erected or placed thereon by the vendee.

And now to these presents personally came and appeared, Mr. Peter E. Sandager, a married man whose wife's maiden name was Miss Dora Olson, a resident of the parish of Iberia, and declares that he has taken cognizance of the above and foregoing act of sale, and as the holder and owner of a certain vendor's lien and privilege against the property herein sold, does hereby declare that he did and does waive said lien and privilege and mortgage held by him against the vendor and bearing upon the property herein transferred, in so far as his said lien and vendor's privilege and mortgage bears against the property herein transferred, which said lien and vendor's privilege so waived on the property herein sold being recorder in mortgage book A, folio —.

And to these presents personally appeared, the Citizen's Bank, of Jeanerette, a corporation under the laws of the State of Louisiana, domiciled at Jeanerette, La., herein represented by its president, Dr. C. A. McGowan, duly authorized herein by resolution of the board of directors of said Citizen's Bank, of Jean-

erette, and declares that he has taken cognizance of the above and foregoing act of sale and as the holder and owner of three certain notes, secured by special mortgage, executed by Peter E. Sandager, to the Citizen's Bank, of Jeanerette, identified with act before C. M. Compton, notary public, of date November 5, 1917, and recorded in mortgage book A, folio —, does hereby declare that he did and does waive said mortgage held by said Citizen's Bank, of Jeanerette, against the said Peter E. Sandager and which bears against the property herein transferred. It being the intention to cancel said mortgage only in so far as it relates to and affects the property herein transferred containing 4.658 acres, and no further.

To have and to hold the said described property herein conveyed unto the said purchaser, with full and general warranty of title, and with full subrogation to all the rights of warranty, and all other rights as held therein by said vendor.

The vendor declared that all the taxes assessed against said property herein conveyed are paid.

The parties hereto agree to dispense with the production of the certificate required by Article 3364 of the Civil Code of this State, and to exonerate me, the undersigned notary, from all liability in the premises.

This sale is made and accepted for and in consideration of the price and sum of \$500 cash, which amount the said purchaser has paid in ready current money unto the said vendor who hereby acknowledges receipt thereof and gives full acquittance for the same.

Thus done and passed at may office in New Iberia, parish of Iberia, State of Louisiana, on the day, month, and year first above written, in the presence of Messrs. Leonard Lyon and E. S. Broussard, good and competent witnesses, residing in this parish, who have signed these presents with the parties and me, notary, after due reading of the whole.

LEO CONRAD.
C. A. MCGOWAN,
For Citizen's Bank.
P. E. SANDAGER.

Attest:

LEONARD LYON,
E. S. BROUSSARD.

Filed February 13, 1918; time 2.40 o'clock p. m.

J. A. GONSOULIN.

A true copy of original filed in my office this 13th day of February, 1918.

J. A. GONSOULIN,
Clerk of Court.

Building and equipment Iberia Live Stock Farm, Jeanerette, La.

Administration:

Buildings—

Cottage I, 5 rooms.....	\$3,010.15
Cottage K, 5 rooms.....	2,488.89
Office, 4 rooms.....	1,410.04
Well house, 1 room.....	303.73
Bridge house, 3 rooms.....	929.94

Equipment—

Pumping plant.....	1,958.00
Delco electric light plant for cottages I and K.....	377.18
Farm electric light plant.....	2,527.25
Water pipe lines.....	1,656.77
Woven wire fencing.....	39.00

\$14,698.95

Dairy project:

Buildings—

Cottage A, 5 rooms.....	2,710.51
Dairy barn, 30 cows.....	2,184.77
Feed barn (15 tons grain, 35 tons loose hay)....	1,446.63
Milk house, 3 rooms.....	1,566.51
Bull and calf barn.....	1,390.69
Coons silo, 92 tons.....	664.52
Negro cabin, 3 rooms.....	616.39
Concrete walk for dairy group buildings.....	107.05

Dairy project—Continued.

Equipment—

Woven wire fencing, 1,144 rods.....	\$1, 144. 00
Straight wire fencing, 206 rods.....	206. 00
Concrete troughs (4)	22. 22

\$11, 759. 29

Beef cattle project:

Buildings—

Cottage C, 5 rooms.....	4, 142. 24
Beef cattle barn No. 1, 136 head.....	3, 534. 88
Beef cattle barn No. 2, 64 head.....	1, 295. 15
Two Negro cabins, 3 rooms.....	1, 232. 78

Silos—

Concrete (4), 100 tons each.....	952. 40
Stave (3), 100 tons each.....	671. 01
Wood hoop (1), 100 tons each.....	189. 21
Roof of silos	417. 16

Equipment—

Machinery.....	1, 720. 64
Conveyor roof of silos.....	384. 66
Woven wire fencing, 1,370 rods.....	1, 370. 00
Straight wire fencing, 400 rods.....	400. 00
Barbed wire fencing, 4,720 rods.....	561. 48

16, 871. 61

Hog project:

Buildings—

Cottage B, 5 rooms.....	2, 220. 67
Hog feed house, 15 tons grain.....	117. 49
Negro cabin, 3 rooms.....	616. 39
Hog cots, 12, gable roof.....	247. 80
Hog cots, 1, shed roof.....	18. 65
Hog cots, 10, A shaped.....	120. 30

Equipment, woven wire fencing, 1,091 rods.....	1, 091. 00
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4, 492. 30

Horse and mule project:

Buildings—

Horse and mule barn, 20 head.....	2, 239. 66
Jack shed	132. 19
Hay barracks, 125 tons hay.....	923. 64
2 negro cabins, 3 rooms.....	1, 232. 78

Equipment—

Woven wire fencing, 275 rods.....	275. 00
Straight wire fencing, 539 rods.....	539. 00
Wooden fences, 204 rods.....	204. 00

5, 546. 27

Implement and machinery project:

Buildings, tool shed, 36 x 140 feet.....	2, 052. 55
Equipment, implements and machinery.....	3, 500. 00

5, 552. 55

Grand total, buildings and equipment..... 58, 920. 97

Value of live stock on hand at Iberia live stock experimental farm, June 30, 1919.

47 head dairy cattle.....	\$6, 505. 90
117 head beef cattle.....	9, 116. 75
176 head hogs.....	3, 033. 60
31 head horses and mules.....	6, 183. 39

24, 839. 64

RECEIPTS RETURNED TO THE TREASURY.

The following is a statement of the cash receipts for products and animals sold, which amounts were returned to the United States Treasury:

1915-16	\$352. 20
1916-17	975. 76
1917-18	20, 277. 92
1918-19	22, 472. 57

SUMMARY OF EXPERIMENTS AND DEMONSTRATIONS IN LIVE-STOCK PRODUCTION IN THE SUGAR CANE AND COTTON DISTRICTS OF THE UNITED STATES.

DEMONSTRATION WORK.

The live-stock demonstration work, which constitutes one feature of this project, has been done under the direction of Prof. W. D. Dodson, State director of extension in Louisiana. This work is done through field agents, in cooperation with county agents, farms being selected for live-stock demonstrations, which are visited at certain intervals by the field specialists and county agents the giving of directions for the selection of breeding stock, management of animals, methods of feeding, production of forage crops, marketing of products, etc. As was contemplated from the beginning, the expenditures upon the extension work relating to live stock have been decreasing from year to year and the larger proportion of the funds have been used for investigational work at the Iberia live-stock field stations. The amount to be used for extension work during the current fiscal year is approximately \$5,000, leaving approximately \$55,000 for the investigational work.

INVESTIGATIONAL WORK.

From the beginning the experimental work has been enlarged and changed as information relative to crops and live-stock condition were obtained. Each experiment has been recorded in detail and the results published as they were completed.

The experimental work, as planned from the start, has been conducted under four projects, as follows:

Horses and mules.—This division of the farm contains 72 acres of land. The main objects sought in this division are, first, to supply the work stock for the entire farm and to feed it; second, to compare the efficiency of brood mares which bring colts once a year with that of the ordinary "sugar" mule, in order to ascertain both the amount of feed consumed by the mare, as compared with that consumed by the mule, and the amount of work that the mare can do in the climate as compared with that done by the mule; third, to determine the relative cost of producing a first-class mule and whether or not mules of high quality can be raised under such conditions as are found in this region.

Beef cattle.—In the beef-cattle division, containing 278 acres, the accomplishment of two distinct purposes is sought, namely, to ascertain the cost of raising a steer, using pasturage as much as possible and wintering largely on some of the various kinds of silage which can be produced in that region; also to ascertain the cost of finishing the steer under the various local conditions. One method is to finish the animals largely on grass, supplemented by cotton-seed cake. Another, to keep the animals on grass until they can be turned into the corn and pea fields, allowing them to graze off the crops. Still another, to finish lots of steers in the feed yard with various kinds of silage, including corn, sugar cane, sugar-cane tops, Japanese cane, sorghum, and other crops.

In this division of the farm an effort is made to determine the possibilities of producing beef independently of cane production; also of producing it as an adjunct to cane raising. A certain amount of cane is grown on this part of the farm in rotation with other crops; this provides the cane for use in feeding experiments.

Hogs.—The hog division of the farm is devoted to determining the cost of pork products, using, as largely as possible, various rotations of hog crops combined with pasturage. Fifty-three acres is devoted to this purpose and as many brood sows kept as it will carry.

Dairying and hogs.—This section of the farm contains 74 acres and is devoted to producing dairy products and hogs. A small dairy herd is being developed as practically and economically as possible, using, largely, selected native cattle as a foundation and breeding them to a high-class bull. Some pure-bred animals have been secured. Studies are being made in feeding and management of dairy cattle under the conditions of cropping in this section.

The whole purpose of these plans is to establish as definitely as possible the opportunities for handling live stock, either as an independent industry or as an adjunct to some other industry. It is the object to establish, within a few years, methods of live-stock handling that can be adapted to the different systems of farming suitable for that region.

Future work.—The plan for the future is to enlarge certain lines of experimental work that seems most useful and to give added attention to certain special crops for feeding live stock. The additional improvements that are needed are better roads about the farm and to the main road and the improvement of sheds used for the feeding steers. On account of the heavy rains it is desirable to cover considerable portions of the yards in order to keep the cattle out of the mud and also to conserve the manure. There is also need of an additional horse barn to carry on experiments with horses and mules.

RESULTS.

The following are brief statements of results and progress of the major experiments that have been conducted by the experimental farm:

Actual feed and labor costs have been used in obtaining these cost figures, however, accurate records of feed, pasturage, and labor have been kept, and can be applied to any changing values and basic essentials of the work maintained even though values of the above change.

Horses and mules.—It costs \$209.47 per year to maintain a mule working 239 days, or an average of 88 cents per day worked.

It costs \$235.04 per year to maintain a mare working 139 days, or an average cost of \$1.70 per day worked.

After crediting mares with foals that have reached working age, the mares earned per year \$94.63 less than the mules.

This difference in earning power is due to the small number of colts produced and the large mortality among mares and colts. These factors will be eliminated as the diseases become more under control and nonbreeding mares are disposed of. If the mares had raised a 100 per cent colt crop they would have earned an average of \$10 per head more than the mules.

The average cost of raising 9 mule colts to a working age of 2½ years was \$192.66. Their market value was \$320.

The average cost of 17 mules, at 1 year of age, averaging in weight 610 pounds, was \$42.85.

The average cost of 12 mules at 2 years of age, averaging in weight 905 pounds, was \$130.53.

Mules of high quality can be raised under such conditions as are found in this region.

Beef cattle.—The average yearly maintenance cost per cow is \$30.84.

The cost of producing a feeder steer weighing 800 pounds, with a value of \$130.20, was \$62.08, a profit of \$41.12.

That the operation of growing and fattening steers can be economically carried on has been clearly demonstrated. Steers with an average marketing weight of 1,074 pounds were grown and fattened at an average cost of \$103 per head, or at \$9.59 per hundred pounds. These steers having a net market value of \$123 per head make a net profit on the operation of \$20 per head.

The cost of raising heifers to breeding age of 30 months was \$88.83.

The order of efficiency of the various silage crops as measured by the average daily gains produced on steers is as follows:

	Pounds, live weight.		Pounds, live weight.
Corn and soy beans.....	2.32	Corn sorghum, cowpeas, and	
Sorghum and soy beans.....	2.3	soy beans.....	1.96
Corn.....	2.2	Sugar cane.....	1.58
Corn and sorghum.....	2.09	Japanese cane.....	1.48
Sorghum.....	1.97	Cane tops.....	1.36

Results indicate that cattle feeding may be successfully done under southern coastal conditions; that cane tops may be utilized as a feed by making them into silage; that sorghum is the most profitable single silage crop available; that the adding of soy beans to either corn or sorghum increased its value as a silage crop for fattening steers; that Japanese cane, while only producing fair gains for cattle, should have an important place in any cattle feeding scheme in this region because of the large tonnage that can be produced per acre, making it a cheap silage.

Hogs.—Pigs at weaning time average in weight 27.95 pounds, and cost \$2.82 each or 10 cents per pound. Four hundred and fifty-three pigs have been marketed for pork, having a total market weight of 77,807 pounds. Feed production cost amounted to \$13.12 per 100 pounds, and their net selling value was \$17.75 per 100 pounds.

Rice polish when fed alone to fattening shoats has proven to be an excellent feed, producing gains at \$2.79 less than when fed with tankage, and \$1.04 less than was produced by shelled corn and tankage.

As winter grazing crops, oats, barley, and rye rank in the order named.

Crops that failed to give favorable results as grazing crops are sorghum, sweet corn, June corn, cowpeas, and velvet beans.

Dairy.—For ordinary feeding practices in the Southern States where legume hay and sorghum silage are used, results show that velvet-bean meal may be considered as practically equal in feeding value to cottonseed meal for dairy cows in milk.

The cost of raising 8 dairy heifers to one year of age has been found to be \$80.59 per head.

The dairy has been in operation since May, 1917. The feed and labor cost of producing a gallon of milk has been ascertained for the two years. During the first year 16,706.5 gallons of milk were produced at a cost of 26 cents per gallon. During the second year 15,025.82 gallons were produced at a cost of 34 cents per gallon. These charges are for feed and labor only. Overhead expenses amount to approximately 10 cents per gallon additional, making the milk cost for the last year 44 cents per gallon.

Nine pure-bred Jersey cows have been officially tested and placed in the register of merit since being acquired by the station.

EXPERIMENTS IN DAIRYING AND LIVE-STOCK PRODUCTION IN THE SEMI-ARID AND IRRIGATED DISTRICTS OF THE WESTERN UNITED STATES.

The CHAIRMAN. Kindly take up the other item.

Dr. TAYLOR. The other item is for experiments in dairying and live-stock production in the semiarid and irrigated districts, which is the dairy and animal husbandry work in the Great Plains region.

The CHAIRMAN. On what page is that?

Dr. TAYLOR. Page 274. We are asking for \$40,000, the same amount that was appropriated this year.

The CHAIRMAN. Does that come under your bureau?

Dr. TAYLOR. No. It is under the Bureau of Animal Industry, Mr. Raul looking after it. He is out of the city, and as this work is done at field stations which were established by the Bureau of Plant Industry primarily for crop-production work, I may be able to answer questions regarding it.

The CHAIRMAN. Are they making progress?

Dr. TAYLOR. I think so. We feel that the work has a good start and that they are sure to secure results that will be of benefit to the irrigation and dry-farming sections. There are some hard problems involved, in view of the fluctuating feed supply from year to year in the dry country, but some one has to work these out, and we feel that the department should do it.

The CHAIRMAN. Is this largely a plant proposition, seeking to find a stem that will produce two blades instead of one?

Dr. TAYLOR. Partly that.

The CHAIRMAN. Is that practically the whole program?

Dr. TAYLOR. No; there is the question of determining whether they can effectively utilize the forage crops that can be grown there in that dry country.

The CHAIRMAN. In what respect do their crops vary, except that they are light, from any others?

Dr. TAYLOR. They vary in this respect, that they fluctuate from year to year tremendously, with the rainfall, and we have got to work out means of steadying the supply by carrying over in the

form of silage or other forage the surplus of the bumper crop years.

The CHAIRMAN. It is a question of nutrition?

Dr. TAYLOR. No.

The CHAIRMAN. Straw in that country has the same value as in Iowa?

Dr. TAYLOR. Yes; presumably.

I think that is about all, except that I have a brief summary of this live-stock work which I will put in the record if the committee cares to have it go in.

The CHAIRMAN. Very well.

(The summary referred to follows:)

SUMMARY OF EXPERIMENTS IN DAIRYING AND LIVE-STOCK PRODUCTION IN SEMI-ARID AND IRRIGATED DISTRICTS OF THE WESTERN UNITED STATES.

The allotment for live-stock production studies in 1918-19 was \$28,000 for dairying and \$12,000 for beef cattle, swine, and sheep.

DAIRYING.

The dairy work has progressed along the same lines as in the previous year and has been extended. Practically all the building work had been completed, but it was necessary to do some additional construction work at the Ardmore and the Huntley stations. On account of the high cost of materials and the difficulty of securing labor, buildings for the new stations were not constructed during the past year, and therefore \$7,810 was unexpended from this appropriation.

Ardmore station (Ardmore, S. Dak.).—At the Ardmore station, a pit silo was dug and filled with silage. This was done for two reasons: First, to furnish silage during the very severe weather, because during several of the winter months it is difficult to dig out the frozen silage and it is inconvenient to feed it; second, to increase the silage capacity at this station so that in a good year enough silage may be stored to last through a period of drought. Some minor changes have been made in the milk house and other buildings.

An experiment with various pasture-grass mixtures was undertaken, but, on account of unfavorable weather, a stand was not secured.

The dairy herd at Ardmore now consists of a pure-bred Holstein bull, 16 pure-bred Holstein females, and 13 grades. Semiofficial records have been conducted with 6 of the pure-breds, and they have made creditable records.

Huntley station (Huntley, Mont.).—At the Huntley station, a new building was constructed during the year additional shed space and several box stalls for the herd. A part of the expense of constructing a manure pit was also paid from these funds.

The experimental work consisted of continued studies with sunflower silage as compared with corn silage; an experiment to ascertain the capacity of different mixtures for irrigated pastures, and to determine the maximum carrying capacity of tame-grass mixtures. In spite of the high price of sugar beets and other inducements in crop production, there has been much progress made in dairying in the Huntley region. During the year a carload of pure-bred cows was shipped from the East to the farmers in that neighborhood.

The herd now consists of 2 pure-bred bulls, 22 pure-bred Holstein females, and 9 grades. One of the pure-bred Holsteins produced last year 24,075 pounds of milk and 692.82 pounds butter fat, on official record. One pure bred, in an experiment in which she was fed roughage alone, produced 14,210.1 pounds of milk and 470.24 pounds of butter fat.

The herds at Ardmore and at Huntley are used in connection with the general breeding project of the department and 10 bulls have been loaned to dairymen in that region under special arrangement, whereby records will be kept so that the prepotency of the bulls may be ascertained and used in the future breeding work.

The expenditures from these farms for the fiscal year 1918-19 were as follows:

	Ardmore.	Huntley.
Salaries.....	\$2,001.25	\$1,511.25
Wages (farm and dairy).....	1,997.70	2,136.91
Travel.....	280.96	227.20
Equipment and material.....	2,494.56	1,832.98
Miscellaneous (including feed, live stock, fencing, etc.).....	2,728.50	4,663.00
Total.....	9,516.96	10,673.38

Receipts returned to the Treasury in 1918-19 for dairy products sold are as follows:

Ardmore station.....	\$1,823.45
Huntley station.....	2,235.82
Total.....	4,059.27

BEEF, CATTLE, SWINE, AND HOGS.

Huntley station (Huntley, Mont.).—A comparison was made with sows and litters on alfalfa pasture, receiving a 2.5 per cent by weight ration of corn alone and corn and tankage. The lot of sows receiving corn and tankage gave a return of 1,269 pounds gain per acre against 850 pounds gain per acre without tankage. The grain per pound of gain was 256 pounds with tankage and 363 pounds without.

A comparison was also made with sows without litters running on alfalfa pasture, one lot receiving no grain, another receiving 1 per cent corn, the third lot receiving 1 per cent of corn and tankage mixture, tankage being one-sixth of the concentrates. The lot receiving no grain lost one-half pound per day, while the others gained practically one-half pound per day. The addition of 116 pounds of tankage for five sows on alfalfa pasture gave an additional total gain of only 5 pounds, saving no corn.

A test was made with spring pigs on alfalfa pasture, the different lots receiving 1, 2, and 4 per cent rations by weight, one lot being self-fed. The self-fed lot required less grain and made more rapid gains than any of the other lots. The pounds of grain for 100 pounds gain was 248 pounds self-fed, 294 in the 3 per cent ration, 285 in the 2 per cent, and 262 in the 1 per cent ration. These hogs were later finished out in a dry lot where the hogs which had received the 3 per cent ration made the most economical gains.

A test was conducted hogging-off corn with no supplement and with alfalfa hay in a rack. With alfalfa hay in the rack, it required 515 pounds of corn for 100 pounds gain against 634 pounds without hay. Eight hogs in 60 days consumed 100 pounds of hay.

In finishing hogs in a dry lot it was found that corn alone required 733 pounds for 100 pounds gain, while corn and tankage required 486 pounds for 100 pounds gain.

Nevel Station (Belle Fourche Project, S. Dak.).—Various grain rations for fall pigs on alfalfa pasture were tested out. Two per cent rations of barley and corn were practically equal, while a 2 per cent ration of shorts was slightly superior to barley or corn. The addition of tankage to a 2 per cent ration of corn for fall pigs on alfalfa pasture showed no advantage. In this experiment, lots receiving corn in the self-feeder and corn and tankage in the self-feeder produced practically identical results. The rate of gain was higher than in the 2 per cent rations. It required 840 pounds of grain for 100 gain in the self-fed lot, compared with 250 pounds grain in the lots receiving 2 per cent rations.

Similar experiments were conducted with spring pigs. Two per cent rations of corn and barley and shorts were practically equal. With spring pigs, corn in the self-feeder gave gains of .93 pound per day, while the 2 per cent ration gave gain of only 0.45 pound per day. The pigs on self-feeder required more corn for 100 pounds gain than the lot receiving 2 per cent corn, but it was reported that the corn was of very poor quality.

Tests were conducted carrying sows on alfalfa pasture with no grain and with a 1 per cent ration of barley, corn, and corn and tankage. The lot of sows receiving no grain lost $\frac{1}{2}$ pound daily and the test was unsatisfactory. The lots receiving 1 per cent ration of barley and corn gained .58 and .49 pounds daily, while the lot receiving 1 per cent ration of corn 14 parts and tankage 1 part showed an average daily gain of 1 pound.

A test was made of sows with litters on alfalfa pasture receiving $2\frac{1}{2}$ per cent rations of shorts, barley, corn alone, and corn with tankage. The lots receiving shorts and barley required 354 and 355 pounds grain for 100 pounds gain, while the lot receiving corn alone required 294 and lot receiving corn and tankage only 244 pounds grain for 100 pounds gain.

Four one-half acre lots of irrigated land were hogged off. The first lot received no supplement, the second had access to alfalfa hay in the rack, the third to alfalfa pasture, and the fourth to tankage in self-feeder. The lot receiving corn alone required 573 pounds on 100 pounds gain, corn with alfalfa hay 515 pounds, corn with alfalfa pasture 430 pounds, and corn with tankage self-fed 363 pounds. The lot receiving tankage in the self-feeder was the outstanding lot, making an average daily gain of 2.11 pounds, against 1.37 pounds corn with alfalfa pasture, which was the second highest lot.

Ardmore Station (Ardmore, S. Dak.).—The experimental work at the Ardmore field station has been largely confined to beef-cattle production by the use of native pastures and forage crops.

This work has involved the use of about fifty 3-year-old steers. For the purpose of experimental work these steers have been divided into four separate bunches. One lot of 10 head has been running in a pasture of 150 acres; another lot of 10 head has been running in a pasture of 80 acres; and 20 head have had the use of 160 acres. In this 160-acre pasture 20 head are run on alternate pastures. The pasture season has been approximately six months—that is, from the first of May until the last of October. About 10 head have been carried in reserve and have had the use of a large reserve pasture. During the winter these cattle have been carried in a small pasture which has been supplemented by the use of forage crops and cheap feeds produced on the station.

Valuable data have been collected regarding the carrying capacity of pastures under varying conditions. Extensive botanical studies have been made in connection with this grazing experiment. While these experiments have not been in progress long enough to make possible definite conclusions, the results obtained indicate that the 10 steers on the 150-acre pasture have an excessive amount of feed. The lot of 10 head on the 80-acre pasture, on the other hand, are using the pasture to its maximum capacity. Better results are obtained from the 20 head which graze two 80-acres alternately. Results indicate also that it is an economical practice to run the cattle through the winter on forage crops (sorghum and corn fodder) and other cheap feeds.

A small bunch of hogs has been carried on the experimental farm with a view to developing a larger herd of pure-bred swine, which is to be used in the experimental work during the coming year.

The expenditures for the beef cattle, swine, and sheep work on these farms for the fiscal year 1918-19 were as follows:

	Salaries.	Miscellaneous.	Total.
Huntley, Mont.	\$3,871.12	\$1,649.69	\$5,520.81
Ardmore, S. Dak.	390.00	2,551.74	2,941.74
Newell, S. Dak.	1,479.27	1,146.74	2,626.01
Scottsbluff, Nebr.	721.50	.....	721.50
Washington, D. C.	114.59	.....	114.59
Miscellaneous experiments, all stations.....	.....	28.91	28.91
Total.....	6,576.48	5,377.08	11,953.56

PURCHASE AND MAINTENANCE OF MOTOR-PROPELLED VEHICLES.

(This item is discussed in general statement by Mr. F. R. Harrison covering various items in the miscellaneous section of the estimates.)

EXCHANGE OF PARTS OF AUTOMOBILES.

(This item is covered in general statement of Mr. F. R. Harrison relative to the miscellaneous section of the estimates.)

ERADICATION OF FOOT-AND-MOUTH AND OTHER CONTAGIOUS DISEASES OF ANIMALS.

(See statement of Dr. John R. Mohler relative to this item under Bureau of Animal Industry section of these hearings.)

THURSDAY, JANUARY 8, 1920.

AFTERNOON SESSION.

ERADICATION OF PINK BOLLWORM.

STATEMENT OF MR. C. L. MARLATT, CHAIRMAN OF THE FEDERAL HORTICULTURAL BOARD, DEPARTMENT OF AGRICULTURE.

(After discussion of estimates of the Federal Horticultural Board:)

The CHAIRMAN. We will take up item 9, on page 282, "for the eradication of the pink bollworm."

Mr. ANDERSON. You have some transfers to the statutory roll of the Federal Horticultural Board from the lump sum for the eradication of the pink bollworm. Is that pink-bollworm work likely to be continuous?

Mr. MARLATT. The field work in Texas may possibly be continued about on the present basis for two or three years more, but the quarantine service will have to be maintained indefinitely to protect against entry of the insect from Mexico and against its entry with imported cotton at New York, Boston, and elsewhere. Part of it is, therefore, continuing work unless we should be so unfortunate as to get the insect established in this country.

Mr. HARRISON. We are suggesting, Mr. Anderson, a reduction of approximately \$200,000 in that item.

Mr. ANDERSON. The only thing I had in mind was that, if the work itself is not permanent, there is no use in making permanent the clerical services connected with it.

Mr. HARRISON. We merely followed the usual practice in reporting these transfers.

Mr. McLAUGHLIN of Michigan. From what foreign places do you find this cotton infected with the pink bollworm imported?

Mr. MARLATT. The pink bollworm occurs practically in every cotton-producing country of the world, except the United States, and hence all import cotton must be disinfected.

Mr. McLAUGHLIN of Michigan. If the insect becomes established in the United States, would its ravages be as great here as in those other countries?

Mr. MARLATT. Its ravages here might be even greater than in these other countries. The principal cotton-producing country that is now

affected by this insect is Egypt, Brazil next, then China, and other countries, including India. The damage in Egypt, where the insect has now been for about 12 years, is reckoned at 18 to 20 per cent of the crop, but that is under a very expensive method of control which can be carried out in Egypt, but I doubt very much whether it could be carried out in this country. Abundant and cheap labor makes it possible in Egypt for the Government to enforce, at the end of each crop season or a little before the end of the season, the uprooting of all the cotton in the field. Such uprooted cotton stalks constitute an important fuel item of Egypt, and to eliminate the pink bollworm the uprooted cotton plants are drawn over a comb-like machine which strips from the plants all the unripe bolls and the buds—that is, the parts that contain the insect—and all the stripped-off material is promptly burned. The cleaned cotton stalks are then piled up in the village centers and inspected by the Government inspectors to see that all the bolls or flower parts have been removed. It is apparent that such a process, though efficient in destroying a large percentage of the insects, is expensive. By that means the crop of Egypt is maintained with a minimum loss. In addition to that, the Government controls and disinfects the cotton seed and distributes disinfected seed for planting. The whole process is expensive and elaborate, one which under our labor conditions would be prohibitive in cost. In Brazil—I think I may have mentioned this at a former hearing—the insect was introduced by the Government unwittingly. The Government in its endeavors to increase and benefit the cotton crop of Brazil imported a lot of cotton seed from Egypt just about the time the insect was getting a foothold there, and by the same system of seed distribution which we have in this country, and which also is similarly dangerous, this insect was distributed and established throughout the principal cotton-growing States of Brazil. Recent reports indicates that it is fully as destructive in Brazil as in Egypt.

Mr. JACOWAY. Is the pink bollworm more destructive than the cotton-boll weevil of the South?

Mr. MARLATT. It apparently is a more destructive insect and carries its work further than the boll weevil, destroying the seed as well as the lint.

Mr. HEFLIN. It eats out everything.

Mr. JACOWAY. If you had this elaborate program for port inspection which you have outlined in the estimates for the Federal Horticultural Board, would the citrus canker ever have gotten any very great foothold in the citrus fruit-growing districts of this country? Would not that have prevented this economic loss in Florida, Alabama, Texas, and elsewhere?

Mr. MARLATT. It undoubtedly would.

The committee will recall that the pink bollworm became established in portions of Texas as a result of its getting a foothold in Mexico, and the beginning of this work of control in Texas in 1917 and 1918. The entry of the insect into Mexico, as in the case of other countries, was through the agency of cotton seed imported from Egypt. In the effort to get a better quality of seed certain individuals made importations of seed from Egypt, thus bringing this insect into Mexico, and particularly into the Laguna district, a mountain valley in the interior of northern Mexico about 50 miles

in diameter, and the principal area of cotton production in that Republic.

Mr. McLAUGHLIN of Michigan. How far from our border?

Mr. MARLATT. Two hundred or three hundred miles. We had thought up to that time that Mexico, like the United States, was free from this insect, and we were permitting a certain amount of interchange of cotton products with Mexico, restricted, however, as to cotton seed, which was allowed to be brought in for milling purposes only. When we discovered in 1916 that the pink bollworm was in this district in Mexico, further entry of cotton seed from Mexico was stopped by quarantine and an intensive inspection and clean-up was given to all mills which had received Mexican seed. This work has already been recounted before your committee and was undertaken under the original appropriation of \$50,000. That work was very thoroughly done and apparently was successful in the case of every mill, some 12 mills altogether, except 2. In the case of the mill at Herne, Tex., there was a very limited infestation started apparently from the mill. In the case of the mill at Beaumont, Tex., a larger area of infestation was started, due to the fact that the mill owner violated his contract and sold for planting some of the imported seed. Later on it was found that the insect had gained a large foothold about Galveston and Trinity Bays. This has all been explained to your committee in former years. As a result of these findings Congress gave an appropriation of \$250,000 for clean-up work in Texas and elsewhere. This work was carried out with great thoroughness in the fall and winter of 1917-18—very much after the methods which I have described for Egypt—the plants being uprooted and burned, and in some instances the ground being burned over.

Mr. McLAUGHLIN of Michigan. Has there been any recurrence?

Mr. MARLATT. That is what I wish now to describe. During the season of 1918, that is, last year, no cotton was allowed to be grown in any of the districts which had been infested and cleaned up. A lot of difficulty was experienced in enforcing that prohibition. It was a State prohibition; the Department of Agriculture cooperated with the State authorities in its enforcement. Fully 95 per cent of the planters concerned complied with the order, but others planted cotton, largely on the advice of certain attorneys who promised to defend such planters. There was a fee in it for these attorneys. Such contraband cotton was grown, but of the whole area in the Trinity Bays district of many hundreds of square miles—larger than the State of Connecticut—only in certain limited areas. All this contraband cotton eventually was taken under the control of the State and was cleaned up in the fall and the seed crushed and the lint exported through the port of Galveston.

Mr. McLAUGHLIN of Michigan. Did you find anything?

Mr. MARLATT. No pink bollworm was found in the State of Texas during the season of 1918 as a result of thorough inspection work, which included also the uprooting and destroying of all volunteer cotton throughout the infested districts. We were very hopeful, therefore, that the problem had been solved. If it had been thus solved, it would probably have been the biggest piece of work of that kind that the world has ever seen.

Mr. JACOWAY. What was your appropriation to start this work?

Mr. MARLATT. The original appropriation was \$50,000, for inspection and the border quarantine to prevent entry from Mexico. That was before we knew we had the insect. When the pink bollworm was found in Texas in the fall of 1917-18, we were given an emergency appropriation for clean-up work of \$250,000. This was followed, as already noted, with an appropriation for the fiscal year 1918-19 of \$500,000, and for the current fiscal year of \$600,000.

In the eradication work of 1917-18 the farmers and planters of the large districts involved cooperated with us in the main very patriotically and heartily. At the end of this season of 1918 they made representations to the State and to our agents that, as they had given us this cooperation and as no recurrence of the insect had been found, they wanted to be permitted to grow cotton the next year.

Mr. HEFLIN. How close to the Mexican line was this contraband cotton grown?

Mr. MARLATT. It was grown in the Trinity Bays district near the Louisiana line and hundreds of miles from the Mexican border.

This demand to be permitted to grow cotton could not be very well denied. In point of fact, if it had been denied, I doubt whether the State would have been able to enforce prohibition of the growth of cotton. The growth of cotton under restrictions as to disposal of crop was therefore authorized in the quarantined areas for the season of 1919, with the understanding that if the pink bollworm should develop again that year in these areas the planters would be willing to abandon the growth of cotton for such term of years thereafter as the State and the Federal authorities should deem necessary. This cotton was kept under very careful inspection all summer, and no infestation was found until late in October, 1919. There has since been found a very slight and scattering infestation over the Trinity Bays area—much less than in 1917.

For the purpose of bringing the situation as a whole in Texas before you, I will postpone the consideration of the reinfestation in eastern Texas and discuss the two new areas of slight infestation in western Texas determined late in 1918, namely, in the Great Bend of the Rio Grande and in the Valley of the Pecos.

The Great Bend infestation was scattered over a distance of 150 miles in small valleys at the base of the mountains, representing altogether only a few hundred acres, and appears to have resulted from an original infestation on the Mexican side of the river, from planting seed brought by Mexican farmers from the Laguna district of Mexico.

The Pecos Valley infestation was traced to some of this Mexican cotton which had been carried from the Great Bend district to a gin at Barstow, Tex., and presented a rather serious situation in that the insect was here brought into a district where cotton is commercially grown on a fairly large scale. Fortunately, the infestation was limited to comparatively few fields.

Active work was immediately undertaken to exterminate the insect along the lines which had been so successfully followed in eastern Texas. The area cleaned in the Pecos Valley involved about 5,000 acres. In this work the War Department rendered valuable assistance by loaning camp equipment for the housing of labor. An intensive survey made of the entire Rio Grande and Pecos Valley districts revealed no other infested cotton.

Neither of these new regions, on account of their remoteness from other areas of cotton culture, present the same risk to the cotton industry of the South as did the outbreak in eastern Texas. In view of this fact and for the reason that alfalfa, the only other dependable crop in this district, could not be successfully established in the spring of 1919, a plan was devised permitting the planting of cotton in the Pecos district in 1919 under adequate safeguards and provision for the full control of the crop by the State cooperating with Federal authorities. The planters agreed that after 1919 this district should become a strictly noncotton zone for such period as may be determined to be necessary.

A noncotton zone was immediately established for the Great Bend district. This action was taken under State law on account of the known infestation on the Mexican side of the river.

Mr. McLAUGHLIN of Michigan. How far away is the Pecos district from Mexico?

Mr. MARLATT. About 200 miles. A bale or two of unginned cotton carried the insect to this region in the Pecos Valley.

Mr. McLAUGHLIN of Michigan. It was not discovered in the bales?

Mr. MARLATT. No; we had no knowledge of this movement. In fact, the cotton in question had been grown in Mexico and had been smuggled across the border. I am sorry to say that one of our citizens, with whom we have had much trouble since, is believed to have been a party to this action.

These new regions in western Texas have also been under close inspection throughout the season of 1919.

As already noted, the State of Texas issued an order prohibiting the growth of cotton in the Great Bend district altogether. This same individual who had been largely responsible for the introduction of the insect into the Pecos Valley, however, planted a field of 100 acres. The State has had the matter in hand all summer, and just at the time of harvest that cotton is being destroyed. Naturally there has been trouble and ugly feeling on account of this action.

As a result of the season's intensive inspections in the Pecos Valley district, but a single larva was found, and that late in the fall.

Mr. McLAUGHLIN of Michigan. Does that larva mean a bunch of them?

Mr. MARLATT. One boll with one worm in it is the entire finding in the Pecos Valley district.

This finding was after very intensive plant to plant inspection of many weeks, and therefore indicates that the insect had been here practically exterminated. The findings in the Trinity Bays district, as already noted, have been very scattering as compared with the 1917 crop. While it is very disappointing to find these bollworm reappearing where we had some reason to hope that the insects had been exterminated, the situation, on the other hand, has some favorable features. In the first place, the insect has been enormously reduced in eastern Texas and practically exterminated in western Texas. It indicates, further, that the men who are doing the work are alert and on the job, so that they were able to find the one worm in the Pecos section, where possibly that worm was the only one. The finding of that one worm was the result of over 200 days of inspection, one man working 200 days, or five men working 40 days,

whichever it might be. After that one worm was found, the district was given another 100 days inspection without finding another.

Mr. McLAUGHLIN of Michigan. Is that worm found in the boll?

Mr. MARLATT. It is in a boll.

The CHAIRMAN. Is the pink bollworm practically exterminated?

Mr. MARLATT. Unfortunately, it is not; but we have made a big start. We are now engaged in concluding the work of cleaning up these reinfested areas of 1919. It has involved the employment of hundreds of laborers to clean up these areas, including the burning of every stalk of cotton and the picking up of every boll. The State is now considering the prohibition of the growth of cotton for a period of at least two years in the Trinity Bay area. In the Pecos Valley cotton will be permitted to be grown again under restriction as to the crop produced. The finding of but a single larva and the isolation of the district warrants this action.

With regard to the recurrence of this insect in 1919 various explanations are given which seem reasonable. In the first place, a 100 per cent perfect clean up in one year is probably not possible. Furthermore, this larva unfortunately has the ability to live over one year without transforming to the butterfly or moth stage. Apparently this is a provision of nature which may have been necessary in India to maintain the existence of the insect; at any rate, the insect will occasionally live over in cotton seeds to the second year before it transforms. It is evident that one noncotton year is insufficient. On the whole, however, I think the work has been very encouraging and it promises ultimate extermination in Texas if we keep it up along the lines we have been following.

The CHAIRMAN. Does the worm subsist on anything but cotton?

Mr. MARLATT. It can be forced to feed on a number of other related plants, but we have never found it on such plants in Texas.

The CHAIRMAN. The plan, then, is to starve it?

Mr. MARLATT. To destroy by clean-up as many as possible and starve the balance.

Mr. HEFLIN. In the summer of 1917 I was invited by the State legislature of Texas to speak on this subject. I urged cooperation between the State of Texas and the Federal Government in establishing a noncotton zone along the Rio Grande River. This was for the purpose of starving out the pink bollworm moth before he could get across this noncotton zone from Mexico into Texas. The legislature of Texas adopted my suggestion and passed the act necessary to establish the noncotton zone.

Mr. MARLATT. The subject is one which has a lot of detail. For example, I have not discussed the cotton-free zones being maintained between Texas and Mexico. Naturally, these zones are on the American side.

Mr. HEFLIN. The idea, as I have said, in keeping cotton from being grown in that zone was to starve the pink bollworm moth before he got through the noncotton zone into Texas.

Mr. MARLATT. That is the idea.

Mr. HEFLIN. Texas is still maintaining her law on that subject.

Mr. MARLATT. The zone or zones do not extend the whole length of the border. The law provides for a zone where and when necessary. Whenever the pink bollworm reaches a point near the American border, Texas under her law can establish a zone in the neighboring

border counties. There are such zones in the neighborhood of Eagle Pass, and covering the Great Bend area.

Mr. HEFLIN. Texas passed this law when we asked her to establish these noncotton zones.

Mr. MARLATT. Yes.

Mr. HEFLIN. And we have saved the cotton producers and the Government of the United States millions of dollars.

Mr. JACOWAY. How fast does this worm travel in a year?

Mr. MARLATT. We are not giving it an opportunity to travel in this country. It may be widely distributed by seed, and even by baled cotton, but not very rapidly by flight of the moths. It is not a strong flyer, or, at least, keeps close to the ground. During heavy winds it is apt to keep to cover, and hence we believe that a zone one county wide will be sufficient to starve it out and prevent any insects from getting across.

Mr. JACOWAY. That would be about 60 miles.

Mr. MARLATT. Yes; 50 or 60 miles.

Mr. HUTCHINSON. Is this pink boll worm more destructive than the boll weevil?

Mr. MARLATT. It is believed to be more destructive than the boll weevil.

Mr. HUTCHINSON. What precautions do you use with the ordinary boll weevil?

Mr. MARLATT. I think that was discussed in the hearings under the Bureau of Entomology. The same work that has been done in the past is being continued and some new phases of the work are being developed, particularly in the line of poisoning.

Mr. HUTCHINSON. Are you spending the \$500,000?

Mr. MARLATT. The appropriation for the pink boll worm has been looked upon by us as an emergency appropriation, to be spent only as the needs warranted. In point of fact, we have turned back to the Treasury every year a considerable portion of the appropriations. It is spent for such emergencies as the new outbreaks in the Pecos Valley and in the Great Bend and the reinfestation in eastern Texas. It has covered the intensive inspection which it is necessary to maintain throughout Texas, and even in other States, the border quarantine service, and the research and other work in Mexico.

The CHAIRMAN. Kindly give the amount turned back into the Treasury.

Mr. MARLATT. The appropriation of \$250,000 for 1918 was largely expended in the very extensive clean-up of the scattering cotton fields over an area in eastern Texas as already noted larger than the State of Connecticut. Some \$17,000 of this appropriation, however, was unexpended. Of the appropriation of \$500,000 for 1919, upward of \$160,000 was turned back to the Treasury. The heavy expenditures of that year were caused by the intensive inspection of all the old infested areas, including the uprooting and destruction of all volunteer cotton and also the inspection of the region surrounding all the seed and spinning mills in Texas and elsewhere which had received cotton seed or cotton lint from Mexico. It also covered the extensive clean-up necessitated by the development of the insect in western Texas in the Great Bend and Pecos areas.

We expected this year (1919-20) to turn back a much larger portion of the appropriation, because we hoped that the insect would

not reappear in Texas. The work we have been compelled to do this fall and winter in clean-up in the areas I have described will, however, take up a great deal of the current appropriation. You will notice that we have reduced our estimate by \$200,000 for the next fiscal year. This estimate was prepared before the insect had been rediscovered in the old areas in eastern Texas. But with the efficient work of this winter the reduced appropriation may still be sufficient for the needs of next year.

Mr. McLAUGHLIN of Michigan. You speak of a very large number of men. Are they employed by you and paid out of this fund?

Mr. MARLATT. They are employed by the department and paid from this fund.

Mr. McLAUGHLIN of Michigan. What is the State doing except to establish zones and prohibit the growth of cotton?

Mr. MARLATT. The State has not appropriated large sums of money, but it has incurred a large obligation which it will have to meet. For example, the State is obligated to pay for all cotton destroyed in the course of the work, and I was advised yesterday that the value of the cotton destroyed this fall amounts to some \$50,000, which the State will have to meet. So the State is and will cooperate in quite a large way in the work. We have no fund to reimburse planters for crops destroyed.

Mr. HUTCHINSON. That is under the pink-bollworm appropriation?

Mr. MARLATT. Yes.

Mr. McLAUGHLIN of Michigan. It seems to me they ought to cooperate in the employment of this labor.

Mr. HEFLIN. They feel that they are doing enough to give up the production of cotton in that area.

The CHAIRMAN. The States cooperate in the eradication of citrus canker.

Mr. MARLATT. Yes; they cooperate in that.

Mr. McLAUGHLIN of Michigan. When the Federal Government furnishes all the expert scientific work it looks as though the manual labor, or part of it, at least, should be supplied by the State.

Mr. MARLATT. This is the problem: If that insect becomes established in Texas, it will very shortly be distributed throughout the whole cotton-growing area of the South. Its control, therefore, affects the whole United States, and this is, I think, a legitimate instance where the Federal Government is perhaps more interested than the State. But in this particular case I think the State, with the liability it is assuming for all crops destroyed, is fully meeting its share of the burden, and in addition to that, the entire department of agriculture of the State is cooperating extensively in direction, quarantine, and general overhead work.

Mr. McLAUGHLIN of Michigan. As against an appropriation of \$500,000, that \$50,000 is not a very large contribution.

Mr. MARLATT. But that is a contribution which may have to be made not only this year but every year when any destruction of the crops occurs.

Mr. HEFLIN. This is distinctly a Federal proposition. The whole cotton-producing area of the United States is involved. If the pink bollworm gets into Texas, it is in the cotton belt, and ultimately the Government would have to spend 10 to 40 times as much to destroy this pest as it now spends to keep it out; is not that true?

Mr. MARLATT. I think so.

Mr. HEFLIN. Take the gipsy moth and other pests like that. The States are not doing anything.

Mr. McLAUGHLIN of Michigan. The gipsy-moth States have contributed large sums of money. The State of Massachusetts contributed \$2,000,000.

Mr. MARLATT. I do not think they contribute anything now. They did originally contribute large sums of money—a million or more dollars.

Mr. McLAUGHLIN of Michigan. You are not using large sums now for the gipsy-moth work?

Mr. MARLATT. Some \$300,000 a year, but the entire work that is being done up there in the line of control is Federal work. I say that, leaving out, of course, the work of the individuals and the towns. The towns are doing some work and individuals are doing a great deal of the work; but, as far as I know, the State is doing practically nothing.

Mr. McLAUGHLIN of Michigan. Why has the State stopped? Is it because the gipsy moth is under control or eliminated, or what?

Mr. MARLATT. The Federal work is not so much in the interest of Massachusetts as it is in the interest of the whole country. The Federal aim is to prevent wide jumps of the insect; that is, a cleaning up of the roadside to prevent the carriage of the insects to other States in interstate traffic. The Federal funds are spent also in inspection and certification of products for interstate traffic and for the general enforcement of the moth quarantine. This work is of no special value to New England but is of value to the surrounding States and the United States, and in that regard the work must necessarily be looked upon as Federal work rather than State work. But the State work is represented by this local clean-up now left to towns and cities. Each town has its fund and its gipsy-moth commissioner, and individuals are spending a great deal of their own money in cleaning up their premises, but that, of course, is local work. This Federal work is really for the benefit of the whole country and to prevent wide jumps and interstate movement of the insects.

In the moth control in New England we are simply attempting to prevent spread. In the case of the pink bollworm work in Texas, we are attempting extermination, and we believe that we will ultimately be successful in this effort. The State of Texas has shown extraordinary earnestness in its cooperation and support of this work in the passage of necessary legislation, the promulgation and enforcement of necessary quarantines and restrictions on the growth of cotton, actual appropriations of money, and cooperation in the overhead and inspection work. The great majority of the planters in the quarantined and restricted districts have accepted hitherto the prohibition on the growth of cotton, their principal money crop, and have actively cooperated in the necessary clean-up work and in the maintenance of the restrictions.

Mr. McLAUGHLIN of Michigan. They have approved the expenditure of Federal money for that purpose?

Mr. MARLATT. And have provided also for the expenditure of the State money and the State moneys might have exceeded the Federal moneys very largely if this insect had been found two or three months earlier instead of after much of the crop had been harvested.

Mr. HEFLIN. And they complied with the Federal Government's request and set aside that noncotton zone to cooperate with the Federal Government to keep the pink bollworm out entirely.

Mr. MARLATT. That is quite true.

The CHAIRMAN. You are making progress?

Mr. MARLATT. Very great progress has been made, Mr. Chairman.

The CHAIRMAN. Has it come up to your expectations?

Mr. MARLATT. Rather more than my expectations originally. Our hopes were raised high when we found no worms in 1918; and again in this Pecos Valley district, which is a fairly large area and where the work of one year has so eliminated the insect that only a solitary worm was found this year.

The CHAIRMAN. You feel certain it will be exterminated?

Mr. MARLATT. Yes.

The CHAIRMAN. How long will it take?

Mr. MARLATT. I hope this year's work will finish it, but we want this emergency fund that we have asked for, for the destruction of volunteer cotton in the noncotton zones of 1920 and for the necessary inspection work, border work, etc. We need it also to take immediate hold of any outbreaks which may occur in the next year's crop.

The CHAIRMAN. Can the appropriation be cut off entirely?

Mr. MARLATT. Not at this time unless we loose all that we have gained. After we are sure of our success in extermination the inspection and clean-up work in Texas will be discontinued entirely, but we will have to maintain as continuing work our quarantine on the Texas border and also at the northern ports with respect to import cotton and a certain amount of inspection in Texas and other States and near the border in Mexico.

The CHAIRMAN. What is the expense?

Mr. MARLATT. This pink-bollworm work is divided into four heads. The first is the quarantine work, mentioned on page 282; about \$50,000 is appropriated for that work. It appears here as \$148,560, but \$48,560 is the regular appropriation for the quarantine work.

The CHAIRMAN. That is what you estimate for next year?

Mr. MARLATT. That is for the general administration of the border work. \$100,000 is for chemicals and labor, which goes back into the Treasury of the United States. Our annual or continuing needs are for the overhead and the maintaining of the quarantine stations at some six or eight ports on the Mexican border, and this is covered by the \$48,560. The \$100,000, as you are aware, was allowed by Congress last year for the purchase of chemicals for disinfection of cars and freight entering the United States from Mexico.

The CHAIRMAN. What is the total expenditure and what amount is likely to be turned into the Treasury?

Mr. MARLATT. The total expenditure will probably be fully the \$148,560 for the quarantine work on the Mexican border.

The CHAIRMAN. Of that \$100,000 is to be turned back into the Treasury?

Mr. MARLATT. The \$100,000 will be recovered in charges for fumigation of cars and freight and will go back to the Treasury.

The CHAIRMAN. The entire cost will be \$50,000?

Mr. MARLATT. Yes.

The CHAIRMAN. What are the fees?

Mr. MARLATT. This inspection has hitherto been done by private persons who made their own charges. We supervised the work.

The CHAIRMAN. Do you propose to charge for the service?

Mr. MARLATT. That work was poorly done and we asked authority to build fumigating houses into which cars could be run and disinfected as to both cars and contents. Those houses are now built and in operation.

The CHAIRMAN. How much did they cost?

Mr. MARLATT. They cost in the neighborhood of \$60,000 to \$75,000. That is the investment which the Government has made.

Mr. McLAUGHLIN of Michigan. Up to this time the individuals have done their own fumigating?

Mr. MARLATT. No. There was a company organized to do the work. At that time the cars were given merely interior fumigation. Each car was sealed up as well as could be; a fumigating pot was put into the car, and the charge was let off in the car. As a matter of fact, the cars have more or less cotton seed on the outside and we had to go over the cars and spray them and sweep them, and the results were unsatisfactory and imperfect. It became evident that for good results it was necessary to fumigate the cars as entireties. The local men who had been doing the work were not willing to make an investment for such fumigation.

Mr. McLAUGHLIN of Michigan. You now have the equipment and building and you make a charge for the work?

Mr. MARLATT. The Government does all the work. The charge is simply for the labor and chemicals. No charge is made for the plants and the overhead.

Mr. McLAUGHLIN of Michigan. What is the charge per car?

Mr. MARLATT. The charge per car now is \$5.

Mr. McLAUGHLIN of Michigan. What has it been in the past?

Mr. MARLATT. By the older and what should have been much cheaper process the charge was \$5 to \$7. We are charging less, but we are doing a great deal more work, fumigating the entire car instead of the interior and using twice as much acid and cyanide.

Mr. McLAUGHLIN of Michigan. Besides the fumigating which you do, is there not some inspection of the car that costs money and for which you have made a charge?

Mr. MARLATT. Our inspectors at these ports inspect all the cars and all freight, but no charge is made for that. The charge is limited to the actual cost of the chemicals and rough labor connected with the fumigating of the cars.

Mr. McLAUGHLIN of Michigan. Has there been talk about imposing a charge for the inspection of cars and freight? Have you suggested to the people interested that you ought to make a charge for the inspection of cars and freight and that you intended to do so later?

Mr. MARLATT. For this overhead charge? We are now charging the cost of chemicals.

Mr. McLAUGHLIN of Michigan. Not for fumigating, but for inspection and service?

Mr. MARLATT. We are making no charge for that and have made no such suggestion. The suggestion has come the other way, that the Government should take over the cost of fumigation.

Mr. HEFLIN. You stated that in this noncotton zone where the people of Texas have agreed to plant no cotton, conforming to the statute of Texas, 90 per cent of them have ceased to grow cotton in that area. Do the people who are growing potatoes and other things on which the pink bollworm does not feed and who sell those potatoes in Mexico have to pay for this fumigation of cars when they come back for another load of potatoes?

Mr. MARLATT. There is no charge for any traffic going into Mexico. All those charges occur in connection with Mexican products coming into the United States.

Mr. HEFLIN. Will a car going across this noncotton zone into Mexico come back for inspection and fumigation?

Mr. MARLATT. It possibly might not come back at all. Few American cars go into Mexico except certain lines of ore cars and oil cars. American freight cars are seldom sent into the interior of Mexico at this time.

Mr. HEFLIN. They would forget to send them back.

Mr. MARLATT. Yes. Practically all freight is transferred at the border. The freight that comes through direct is chiefly ore and oil. The American freight goes down to the border and is transferred to the Mexican car. That American car does not require disinfection if it is returned the same day. The Mexican car comes to the American border and transfers to the American car but such car and contents are disinfected before it leaves the border for the interior of the United States. Sometimes also the ore cars are disinfected, because when the ore is stored in an ordinary freight car that is foul with cotton seed, the ore may have more or less of cotton seed in it. As a rule, the ore is carried by cars especially designed and used for that purpose, and those cars go through under certification and are not disinfected.

Mr. HEFLIN. Is it the policy of the Government now to require importers of everything to pay those charges?

Mr. MARLATT. I understand that has been the general policy of the Government. I have not gone into it very deeply, but cattle and other live stock which are imported from abroad are usually held in quarantine at detention yards provided by the Government just as our disinfecting plants on the border are provided by the Government.

The CHAIRMAN. Are charges made for that?

Mr. MARLATT. The overhead charges are all paid by the Government, but the feeding of the cattle, their care, and their disinfection, if that is required, are all done at the cost of the importer.

The CHAIRMAN. Who feeds the cattle?

Mr. MARLATT. The importer feeds them.

Mr. HEFLIN. Are there any items of commerce now coming into the United States that you can recall where the Government pays these charges and the importer is exempted from paying the inspection fees?

Mr. MARLATT. I know of no such commodities. There may be, however. We import a great many rags and things of that sort, but I fancy that the cost of disinfecting that may be required by the Public Health Service or other authority is paid by the importer.

The CHAIRMAN. How about nursery stock?

Mr. MARLATT. The costs in relation to disinfection of nursery stock are paid by the importer, but in the case of all these the Government has furnished the overhead and the inspection and very often, as in the case of livestock, it furnishes the equipment.

The CHAIRMAN. Exactly as you do in this instance?

Mr. MARLATT. Following the same principle.

The CHAIRMAN. Has it been as high as \$8 a car?

Mr. MARLATT. I think in some cases it has been fully that before we took it over. In fact, I think one of the ore companies made provision for the disinfection of its own cars and has charged \$10 for other cars.

The CHAIRMAN. Your charge is \$5 a car?

Mr. MARLATT. We intend to keep the charge at actual cost. We started it at \$5, basing this on an estimate of the cost of the chemicals and labor. We have to be safe because we wish to turn back this \$100,000 to the Treasury. We started at \$5, but I am advised that we may be able to reduce it to \$4 or less. The present system has been in operation only a few months, but the volume of business and a lessened cost of the chemicals now makes it possible for us to reduce the charge to \$4 per car.

The CHAIRMAN. You are required to make a charge?

Mr. MARLATT. The act making the appropriation provides for such charge.

Mr. HEFLIN. Mr. Garner of Texas mentioned that matter to me and suggested that this charge ought not to be made against the importers. He stated to me that it was a burden on the commerce of the country that ought not to be placed on it. That was his contention.

Mr. McLAUGHLIN of Michigan. Mr. Marlatt says it is customary in other similar cases.

Mr. MARLATT. I am of the opinion, gentlemen, that if the Government would undertake to assume the cost of disinfection which is required by Federal quarantine, it would be an advantage to the commerce of the United States. For example, in relation to the disinfection of import cotton at New York and Boston, when the big private plants were built, some of them costing \$500,000, the operating companies fixed a charge of \$3 a bale, which they thought would reimburse them within a year or two at the most. They suggested at that time that they would probably be able ultimately to reduce that charge to \$1 a bale. Instead, this rate was maintained at \$3 a bale and, in fact, increased to \$4 in several instances. We have no control over these charges. They amount to a tax on the commerce of this country, a tax which is probably excessive. Under Government operation the charge would be the actual cost, possibly \$1 or \$1.50 per bale.

Mr. HUTCHINSON. That keeps the price of Southern cotton up, does it not, by charging these fees?

Mr. MARLATT. It amounts to a mild form of protection.

Mr. HUTCHINSON. Then it is really a protection to Texas, is it not?

Mr. MARLATT. I do not think any foreign cotton is excluded by it.

Mr. HEFLIN. Nothing but the long-staple cotton comes in, and we do not produce that.

Mr. McLAUGHLIN of Michigan. How is this pink bollworm getting along in Mexico?

Mr. MARLATT. In Mexico it remains, with minor exceptions, in this Laguna district. It is known to be at two other points in Mexico near the Texas border. In the Laguna district this year it caused a loss of about 20 per cent of the crop.

Mr. McLAUGHLIN of Michigan. Is it spreading?

Mr. MARLATT. It covers practically the whole Laguna district. This is a limited area, an old lake bed, surrounded by mountains. There was not only an opportunity there to restrict it, but to get rid of it for good, because this area is isolated by a hundred miles or more from other cotton. If Mexico had undertaken for that area what we have done in Texas it would probably have been possible to have freed North America from this pest.

Mr. McLAUGHLIN of Michigan. Does not one of these items provide for doing some work in Mexico?

Mr. MARLATT. The second and third items of this appropriation provide for work in Mexico—survey and clean-up work, and also research work. We asked for authority to do some clean-up work along the border in Mexico; and thus safeguard the United States. As a matter of fact, we have made no expenditures for such clean-up work.

The CHAIRMAN. You have not spent any for that purpose?

Mr. MARLATT. No; because we have not been able to secure co-operation on the part of the Mexican Government and the Mexican planters, and we therefore have not been able to get any of the benefits which we hoped to derive from that authority. For the reasons noted, this item has been reduced from \$25,000 to \$10,000. This second item covers not only clean-up work but also survey work along the border in Mexico to determine the needs of local restrictions on traffic and as a basis for the fixing of border cotton-free zones under the Texas law.

The CHAIRMAN. What are you going to do under the third item?

Mr. MARLATT. The third item authorizes investigation in Mexico or elsewhere of the pink bollworm as a basis for control measures. It is a research item. We want to know the habits of the insect and how to control it. For this purpose we have maintained a research station in the Laguna district for the past two seasons. Our men have taken some little risk from bandits, and so forth. I have some photographs showing bandits who were taken in time hanging from telegraph poles in front of the station. This research work is now practically completed. The men engaged in this work have been withdrawn from Mexico within the last few days. The expenditures under this item have not exceeded \$10,000 a year.

Mr. McLAUGHLIN of Michigan. There are many more bandits to be hanged down there. You had better keep them there.

Mr. MARLATT. We would like to retain for any necessary additional research work the amount of \$5,000, and the estimate for this item is now put at that sum. We may have need for it in Texas or in Porto Rico or Hawaii or, perhaps, in Mexico.

The CHAIRMAN. How about the \$225,000?

Mr. MARLATT. The \$225,000 item is a reduction from the \$400,000 item of last year and relates to the surveys and clean-up work in Texas and other States which I have already described in some detail. We look upon this item in part as an insurance fund for the

next fiscal year. We hope we will not have to spend all of it, but if the need arises, the money should be available, because it is too late to come to Congress for it after the emergency develops. As elsewhere explained, a considerable amount of inspection and clean-up of volunteer cotton will have to be maintained.

The CHAIRMAN. That finishes up with the bollworm.

Mr. MARLATT. Yes; Mr. Chairman.

The CHAIRMAN. We are very grateful to you, Mr. Marlatt.

AFTERNOON SESSION.

THURSDAY, DECEMBER 18, 1919.

PURCHASE OF LAND UNDER THE WEEKS FORESTRY LAW.

**STATEMENT OF MR. HENRY S. GRAVES, FORESTER AND CHIEF
OF THE FOREST SERVICE, DEPARTMENT OF AGRICULTURE.**

The CHAIRMAN. What is next, Col. Graves?

Mr. McLAUGHLIN of Michigan. Just a word about the purchase of land under the Weeks Act. You do not ask for any appropriation for that purpose this year, do you?

Mr. GRAVES. Last year that was a matter which was not presented by the Secretary in his estimates, but the recommendation was made by the National Forest Reservation Commission in its annual report to Congress.

Mr. McLAUGHLIN of Michigan. And the last bill carried \$600,000?

Mr. GRAVES. Yes, sir.

Mr. McLAUGHLIN of Michigan. How much of that will be spent before the end of the fiscal year 1920?

Mr. GRAVES. It will practically all be spent. Nearly half of that \$600,000 has already had liabilities set up against it.

Mr. McLAUGHLIN of Michigan. So that at the beginning of the fiscal year, on the 1st of next July, there will be no money in the fund for the purchase of land?

Mr. GRAVES. Unless an appropriation is made this year. The National Forest Reservation Commission has made a report to Congress, in which it recommends a general policy of extension of the fund in the amount of \$10,000,000, making \$2,000,000 available each year.

Mr. McLAUGHLIN of Michigan. One of the reasons urged for the \$600,000 appropriation, which was the amount provided for that purpose, for the current fiscal year, was that the commission had looked over considerable areas of land and had entered into or had options on it, and had contracts in process of execution, and they needed money for the purpose of making good on what they had undertaken. What is the situation now? Have they gone on making contracts?

Mr. GRAVES. In order properly to carry out a program of building up holdings such as these in the different purchase areas where land is being bought under the Weeks law, there is no question but that we ought to have continuity. In the first place, we have an organization which has been trained in the work of appraisal and negotiation for the purchases, which, if the work were interrupted, would

be broken up, and it would take some time to train a new organization.

In the second place, there are lands which have been examined and which are in various stages of negotiation. All of that work would be practically lost.

Mr. McLAUGHLIN of Michigan. Can not all those be taken care of during this fiscal year when that \$600,000 will be available?

Mr. GRAVES. Hardly. The \$600,000 is for the current year, sir.

Mr. McLAUGHLIN of Michigan. Will not all those options be taken care of—those tracts that you have looked over?

Mr. GRAVES. No; because a good many of them are large tracts and in all stages of negotiations. It often takes two or three years to complete a purchase.

RATES FOR HIRE OF MOTOR-PROPELLED VEHICLES.

STATEMENT OF MR. HENRY S. GRAVES, FORESTER AND CHIEF OF THE FOREST SERVICE, DEPARTMENT OF AGRICULTURE.

The CHAIRMAN. I believe there are some other items in which you are interested, Col. Graves?

Mr. GRAVES. Yes, sir; the item for motor-propelled vehicles, page 285, item 12, providing that "whenever during the fiscal year ending June 30, 1921, the Secretary of Agriculture shall find that the expenses of travel can be reduced thereby, he may, in lieu of actual traveling expenses, under such regulations as he may prescribe, authorize the payment of not to exceed 3 cents per mile for a motor cycle or 7 cents per mile for an automobile, used for necessary travel on official business."

Last year we requested an increase in the authority for reimbursing forest officers using their own automobiles for official work on the basis of mileage.

The CHAIRMAN. You want it continued for another year?

Mr. GRAVES. We would like to have it continued for another year, and we would like also to have the maximum rate for automobiles increased to 10 cents and the rate for motor cycles raised to 4 cents.

The CHAIRMAN. You mean the amount per mile?

Mr. GRAVES. Yes, sir.

Mr. ANDERSON. What has been the result of that policy? Have we saved any money by it?

Mr. GRAVES. Without any question we have. I will say, in the first place, that my own belief is that we should not embark on a policy of furnishing Government automobiles to forest officers. I believe it will be desirable in the long run to have trucks on the forests where the hazard of fire is large, for transporting materials and men to fires and for similar work; but, so far as the transportation of the officer himself is concerned, I feel about the automobile as I do about the horse. We don't furnish horses to the forest officers for their own travel, but we do furnish forage. They furnish their own horses, and many forest officers have purchased automobiles, which they use for their official work. I believe that encouraging them to buy cars results in a great deal of efficiency. A forest officer located where there

are roads, as in many of our California forests, is able to cover a great deal larger territory in a given length of time where he uses an automobile, and his inspection is a great deal more efficient than where he undertakes to ride a horse over the long distances traversable by roads in the mountains.

The present rates are not large enough to cover the actual cost of operation of the car, and the men have to go into their own pockets for the cost of official travel. I have some figures here showing the experience during the past summer with a number of automobiles. For example, in the case of 18 Fords the average cost of operation was 7.7 cents per mile. That is the lowest. That, of course, does not include such items as depreciation, taxes, etc., but is only the operating cost.

There were six Dodge cars, which had an average cost of 8.6 cents per mile; four Buicks, 9 cents; two Overlands, 9.6 cents; two Reos, 10 cents; four Studebakers, 10.3 cents; one Paige, 8 cents.

Mr. ANDERSON. Does that include repairs?

Mr. GRAVES. That includes the ordinary repairs, tires, gas, oil, etc. It does not include depreciation.

Mr. ANDERSON. Does it include interest?

Mr. GRAVES. It does not include interest, taxes, depreciation, or licenses.

I should like to be able to reimburse these men at least for what it actually costs them to run their cars while on official work. If a man is going to get a car and use it for official business, knocking around those mountains, I feel that we should at least pay the cost of running the car.

Mr. McLAUGHLIN of Michigan. Have you data there showing the miles traveled?

Mr. GRAVES. I think the original data from which I took this show the miles traveled.

The CHAIRMAN. Will you put the table in the record?

Mr. GRAVES. I will be very glad to put that in the record, with the addition of the miles that they went.

I feel that this allowance should be at least 10 cents.

Mr. McLAUGHLIN of Michigan. Have you any information that would enable you to make a comparative statement of the miles traveled when they are using automobiles, as against the miles traveled when they were using horses?

Mr. GRAVES. I don't know that I have got any accurate figures on that. It would have to be an estimate from my knowledge of the activities of the rangers. I haven't any exact tabulation at this time.

Mr. ANDERSON. What was the average mileage of these automobiles during the year?

Mr. GRAVES. I would have to work out the averages from this table.

The CHAIRMAN. Will you work it out and include that in your statement?

Mr. GRAVES. Yes, sir.

(The statement referred to follows:)

Statement of operating cost of personally owned automobiles used on national forest work during spring and summer of 1919, exclusive of depreciation, license, taxes, insurance, and interest.

Make of car.	Num-ber.	Miles.	Cost.	Average cost per mile.					
				Total.	Gas.	Oil.	Tires.	Repairs.	Miscel-laneous.
Ford.....	18	33,053	\$2,572.36	\$0.0778	\$0.0229	\$0.0051	\$0.0267	\$0.0227	\$0.0004
Dodge.....	6	16,490	1,433.55	.0869	.0179	.0037	.0367	.0244	.0042
Buick.....	4	23,523	2,113.91	.0895	.0206	.0027	.0355	.0238	.0069
Overland.....	2	5,624	540.79	.0962	.0232	.0046	.0468	.0216	.....
Reo.....	2	8,754	878.62	.1004	.0296	.0046	.0393	.0252	.0017
Studebaker.....	4	6,273	647.62	.1032	.0284	.0082	.0440	.0223	.0003

If to the above mileage costs were added the rate per mile for the items of depreciation, license, taxes, insurance, and interest (all of which are legitimate items in the maintenance of an automobile), the cost per mile would be increased by at least 2 cents. The following is a complete statement of all costs as accurately kept by Assistant District Forester Don. P. Johnston from the date of purchase of a Buick automobile, March 11, 1916, to date of sale, June 30, 1919 (3½ years), and it is representative of the loss to many forest officers now using their cars on official business under the current maximum of 7 cents per mile:

Cost of automobile f. o. b. Santa Fe, N. Mex., \$1,085.

Actual operating cost:

License, insurance, taxes, and storage.....	\$289.70
Depreciation.....	385.00
Interest, 6 per cent on investment, 3½ years.....	213.55
Tires, tubes, and vulcanizing.....	657.45
Gasoline.....	379.50
Repairs.....	497.75
Oil and grease.....	42.75
Other supplies (accessories, etc.).....	161.70

Total expense..... 2,627.40

Car sold June 30, 1919, for \$700.

Total mileage, 19,036 miles.

Cost per mile, \$0.138.

So-called "operating" cost:

Miles per gallon gasoline, 17.57; mileage cost.....	\$0.0200
Mileage cost for oil.....	.0022
Mileage cost for tires.....	.0345
Mileage cost for repairs.....	.0267
Mileage cost for other supplies.....	.0084

Operating cost per mile (3½ years)..... 0.0918

(First year, \$0.0792; second year, \$0.0846.)

Personal use, 9,942 miles:

Mileage on Forest Service work, 9,094 miles, at \$0.07 ¹	\$636.58
Actual cost.....	1,254.97

Loss on Forest Service work.....	618.39
Personal travel at \$0.138.....	1,371.99

Personal expense (including loss on Forest Service work..... 1,990.38

Resultant cost for the personal use, \$0.20 per mile.

Other forest officers carried 5,429 miles.

At \$0.20 per mile (commercial rate), \$1,085.80 saving to general expense travel allotments.

¹ The new rate of 7 cents is used instead of the 6-cent rate at which reimbursement was actually made, which means that a loss of \$689.32 was actually met for travel on Forest Service work.

Mr. GRAVES. During the fiscal year 1919 the Forest Service owned and operated three automobiles—all Fords—and the cost of operation and repairs (without depreciation) was 7.7 cents per mile. The Reclamation Service, on the Minidoka project, Idaho, uses 24 Government-owned Fords, and accurate account has been kept for the cost of operation. It was found that for a total of 342,488 miles, the cost, including depreciation, was 9.9 cents per mile, the travel being over much more level roads than are to be found on the average national forest. Also the Reclamation Service operated its own garage, bought gasoline, oil, etc., at wholesale prices, and had no taxes or license expenses to meet.

The requested increase in maximum rate to 10 cents is justified when the conditions of mountain travel are considered—steep grades, rough roads, abnormal tire wear, and often excessive cost of gasoline (45 cents and 50 cents in some instances) and other supplies, all of which increases the operating cost enormously in comparison with travel in the East and Middle West and the valley travel of the West. With the increase in the maximum, many car owners would still be given a rate below it, as before a rate is authorized in any specific case full consideration is given to all factors entering into cost of operation in each case, as type of car, conditions of roads, cost of gasoline and other operating supplies in the locality, etc., as, for instance, with the present 7-cent maximum, rates were authorized at rates below this figure in the case of 2 Fords at 5 cents, 4 Fords at 5½ cents, 56 Fords at 6 cents, 18 Fords at 6½ cents, 1 Buick at 6 cents, 3 Dodges at 6½ cents, 1 Maxwell at 6½ cents, 1 Elgin at 6½ cents, 1 Chevrolet at 6½ cents, and 1 Saxon at 6½ cents. But where conditions are such that the cost of operation does exceed 7 cents, it is desired to reimburse the owners the full amount of operation so that the cars may be used on official business without a resultant loss in operating expenses to the forest officer by whom owned. An increase in the maximum to 10 cents for automobiles and 4 cents for motor cycles is requested.

Mr. HARRISON. Mr. Chairman, perhaps I may say for the record that the suggestion made by Col. Graves meets with the Secretary's approval.

The CHAIRMAN. This would apply to other bureaus, too?

Mr. HARRISON. It would apply to the whole department.

The CHAIRMAN. The amount allowed would depend on the condition of the roads and the locality?

Mr. HARRISON. Yes. You will recall that last year we asked that you give the Secretary discretion to fix the rates so that they might be adjusted according to the travel to be performed, the section of the country to be covered, and the kind of machine used. The committee did not approve the suggestion, but did allow a slight increase in the rates. The increase made last year, however, did not meet the situation. Even if you make the maximum 10 cents for the automobiles and 4 cents for the motorcycles; of course we will not fix those rates for all machines. The amount allowed in any particular case will depend upon the travel to be performed and the kind of machine that is used.

MORNING SESSION.

THURSDAY, JANUARY 8, 1920.

INVESTIGATION AND PREVENTION OF PLANT-DUST EXPLOSIONS AND FIRES.

STATEMENT OF DR. CARL L. ALSBERG, CHIEF OF THE BUREAU OF CHEMISTRY, DEPARTMENT OF AGRICULTURE.

The CHAIRMAN. What is the next item?

Mr. HARRISON. There is an item on page 285, No. 13, Mr. Chairman, "for investigation and prevention of plant-dust explosions and fires," which we would like to have Dr. Alsberg discuss.

Dr. ALSBERG. That item has been put in separately, because it is a cooperative item in which three bureaus take part. That item is "to enable the Secretary of Agriculture to cooperate with State officials, farmers, operators of cotton gins, grain mills, and elevators, and other warehouses, manufacturers, and operators of farm machinery in investigating causes of, and in developing and putting into general practice methods for protection against grain dust, smut dust, or other plant-dust explosions, and resulting fires, including fires in cotton gins and oil mills; to devise and demonstrate methods for destroying or preventing the widely dissemination of smut spores; and to study the problem of cleaning and handling grain in thrashing machines, grain mills, and elevators."

The amount estimated is \$100,000. This work, as I have said, originated in the Bureau of Mines a long time ago. There was a big explosion in a mill up in Buffalo which killed a large number of people. The Bureau of Mines sent a man up there, because they thought he might learn something about coal-dust explosions in studying the cause of the explosion in this mill. The millers asked the Bureau of Mines to carry on some investigational work. The Bureau of Mines said that it did not have authority in its organic act to do any of that kind of work. They said that they were limited to minerals ultimately, and they acted as an intermediary. So that a cooperative project was undertaken with the Bureau of Mines, the Bureau of Chemistry, and the millers, looking to the study of explosions and the causes that produced them in mills and elevators.

While we were beginning those investigations we received complaints from the people up in the Northwest that the I. W. W.'s were placing dynamite in wheat shocks up in the Palouse country. I at once recognized the probability that these explosions were due to dust.

We sent some men up there, and proved that the criminal use of explosives had nothing to do with the matter. The atmosphere was very dry, and the wheat straw in going over the cylinder in the machine—developed electricity from the friction in the machine. You could get 40,000 volts, but, of course, there was but a small amount of it. It would develop a spark on the inside of the thrasher, and as the inside of the thrasher was full of dust suspended in air, the dust would explode just like gasoline or any other combustible material when it is mixed with air in the right proportion. Three hundred thrashers were blown up, and the total loss was about \$1,000,000.

So temporarily we shelved this millwork and sent our people up there to teach the thrashers how to ground their machines. Also, we constructed a perfectly simple little automatic extinguisher. We got the thrashing-machine manufacturers to put these devices on their machines, and in that country during the last year there were practically no explosions. I do not have the figures here with me. At any rate, this year there were practically no explosions in that territory.

On the other hand, we have had reports of explosions in other parts of the country, and it seems advisable not to carry on new investigational work but to carry on the educational work in those sections.

Then we have work in devising methods for preventing explosions in grain mills and elevators. That work, I think, has been very successful. A large number of men have been at work on it. During the war the Secretary set aside from the emergency fund a considerable sum of money for this work. I do not recall just how much it was, but a considerable sum for carrying out measures to prevent fires and explosions in grain elevators and flour mills.

We had a large staff of men who went into the individual mills and to the individual grain elevators to demonstrate the explosiveness of dust. They went to most of the elevators and they went to most of the mills. They went to the head miller, or the superintendent, and showed him where he was taking chances. They got the employees to sign pledge cards and had those pledge cards acknowledged over the signature of Mr. Hoover and the Secretary, Mr. Houston, by which the employees pledged themselves not to do certain things.

As a result, the loss due to fire and explosions in the mills and elevators during that period of the demonstrations was reduced to 35 or 40 per cent of what it had been ordinarily.

The work was discontinued on the 1st of July last because the emergency fund was no longer available, and the force engaged in that work was laid off.

The Grain Corporation, with which we had been cooperating, learned that we were about to discontinue this work, or that the work had been discontinued. They felt that this was the cheapest sort of insurance that they could obtain, and, therefore, asked the Secretary of Agriculture whether he would have any objection to their taking on their rolls the men who had been laid off by the Bureau of Chemistry, and the Bureau of Markets. Of course, there was no objection and those of the force that had been laid off, that had not in the meantime found other jobs for themselves, were taken over on the rolls of the Grain Corporation and have been working on this grain-dust problem—on this explosive prevention and fire prevention work for the Grain Corporation.

Now, up to the 20th of May last, whether it was due to this campaign, or whether it was due to good luck, we had no explosions; there wasn't a considerable fire or explosion in the United States in that kind of a plant.

On the 20th of May, however, there was an explosion in a mill of the Smith-Perry Corporation, mill and elevator, in which three lives were lost and four men injured, with a property damage of \$150,000.

On the 22d of May there was an explosion at Cedar Rapids, Iowa, but not in a mill, and not in an elevator, and not in the kind of plant with which we have been cooperating. It was in the plant of the Douglas Starch Co., in which 43 men were killed and 30 men were injured. There was a damage of over three million dollars of property which was said to have been destroyed. This, of course, was a starch explosion. We had had a previous explosion in the Corn Products plant, at Edgewater, which took place in 1914.

The CHAIRMAN. How did that occur?

Dr. ALSBERG. I can not tell you, Mr. Haugen, but I can send you the report of our engineer who went there and made an investigation.

The CHAIRMAN. You are of the opinion that it could have been prevented?

Dr. ALSBERG. Yes, sir.

Mr. HUTCHINSON. How?

Dr. ALSBERG. I can't tell you that, in this particular case. I do not recall the details of the explosion. If you are interested, I have the report, and I will send it to you.

The CHAIRMAN. Without objection you may incorporate it in the record as a part of your statement.

Dr. ALSBERG. I will do that.

(The statement referred to follows:)

RESULTS OF INVESTIGATION OF EXPLOSION AT DOUGLAS STARCH WORKS, CEDAR RAPIDS, MAY 22, 1919.

This explosion resulted in the loss of 43 lives and complete property damage. The engineers conducting the investigation—owing to the lack of testimony from survivors—were compelled to base their conclusions on the evidence available. While the cause of the fire preceding the explosion could not be positively established because of the completeness of the destruction, the investigation showed that the fire originated in the dry-starch section of the plant. Two possible causes stand out prominently:

1. A rupture, 8 by 3 inches, in the front of the screen of the Andre starch-grinding machine, broken outward, indicated that foreign metallic substances had been dropped into the grinder and driven through the screen by the centrifugal force. Sparks produced by the foreign material passing through the grinding machinery ignited the dust within the machine and spread through the conveyor leading from this grinding machine, propagating through the entire conveyor system, with the result that a disastrous explosion followed.

2. The possibility of a chokeup within the dry-starch elevator. The investigation showed that this elevator did not have sufficient capacity to handle all material that could be discharged by the conveyor which led into it, even when the conveyor was working to full capacity. Chokeups under similar conditions, however, had produced similar fires within this elevator.

A number of other possible causes were advanced, but the results of the investigation indicate that one of the two causes given might have been responsible.

Dr. ALSBERG. The explosion which took place at Edgewater in the Corn Products plant was due to the fact that their material—I think it is starch—was going into one of the machines with which you are familiar, a reel or sieve of wire gauze. This was a cylindrical sieve of wire netting. The friction of the starch impinging on the metal generated enough electricity to cause the explosion, probably. That has been about four or five years ago, and I do not remember the details.

The CHAIRMAN. What is the remedy?

Dr. ALSBERG. The remedy would be merely to construct the reel so that it would be grounded.

Mr. HUTCHINSON. Doctor, isn't this work absolutely a duplication?

Dr. ALSBERG. Of what?

Mr. HUTCHINSON. All the insurance companies have men who go around and examine the mills and investigate the explosions generally. They examine these mills and elevators regularly and determine with regard to something like that.

Dr. ALSBERG. Yes; but the insurance companies would not believe anything about static electricity or anything about these causes of explosions. We are really teaching them something about their business. They knew quite a little about it, but they did not know all about dust explosions.

Mr. HUTCHINSON. They have the best men in the country seeing to this work, and this is absolutely a duplication.

Dr. ALSBERG. The insurance companies did not know about this.

Mr. HUTCHINSON. They do know about this work.

Dr. ALSBERG. This is one of the things that they did not know about.

Mr. HUTCHINSON. The employees of the department going around over the country and visiting these different mills do not do any good. The ones most interested in this are the insurance companies, and they look after this matter at regular intervals, several times a year.

Mr. HEFLIN. The insurance company people did not prevent the explosions, did they?

Dr. ALSBERG. No; and during the year that these demonstrations were being conducted the explosions and fires were reduced to from 35 to 40 per cent of what they had been before.

Mr. ANDERSON. You know all about the methods that will prevent these explosions and fires?

Dr. ALSBERG. We do not know all about all of them, because we haven't studied anything but the mills. We have not studied these starch plants, and we think that the same degree of protection ought to be extended to them.

Mr. ANDERSON. Just what do you propose to do with this \$100,000?

Dr. ALSBERG. With reference to the mill and elevator explosions we want to investigate the possibility of introducing a gas like flue gas, which has little oxygen in it, into the machinery so that no explosion can occur in them. We want to improve the method of grounding machinery, which isn't entirely simple when the machinery is moving. We want to study the efficiency of different types of aspirating systems, like different kinds of vacuum cleaning systems, because some of them are dangerous and do more harm than good; we want to develop effective methods to prevent machinery getting choked up, elevators getting choked up, either by having an automatic device to prevent it, or else by some signaling system, because one of the common causes of these fires is that the elevator legs become choked up. The pulleys continue revolving in these belt conveyors, when there is a choke while the belt is hung and does not move. Now, frequently the pulley rubbing against the conveyor belting causes the belt to catch fire. The conveyor belt burns through. The belt with its buckets drops down to the bottom

of the shaft, stirring up a cloud of dust. This cloud of dust is ignited by the fire of the belt, and the result is that the explosion runs through the building, and the whole building may be blown up.

We also want to study the methods of improving cleaning machinery. We want to study the prevention of fires in attrition mills, because a great many times fire originates in such mills on account of foreign material getting into the mill. We want to study the efficiency of dust-collecting systems. We want to study the methods for protecting the electrical equipment in such plants. We want to investigate methods of cleaning grain without danger of fire. We want to develop and construct such machines, and we want to cooperate with the Bureau of Mines in studying the inflammability of different types of dust, because they are interested in this kind of work. We also want to develop methods of determining how much dust accumulates.

Now, that is the investigational work that we want to do for the mills and elevators.

On the thrasher work we want to do educational work in parts of the country where we have not been before. We want to determine the value of installing fans for cleaning grain on the thrashing machines: we want to study the methods of collecting the smut which comes out of the thrashing machines and of destroying it so it will not be scattered over the fields, and in that way contribute to the further spread of the smut in the territory. That is what we want to do on the thrasher part of the work.

The CHAIRMAN. You want to prevent the spread of the smut?

Dr. ALSBERG. We want to investigate with regard to the spread.

The CHAIRMAN. For the next year's crop?

Dr. ALSBERG. That is only important where you have summer fallow, as they have up in Washington, Idaho, and Oregon.

The third line of work that we have is only just beginning. That hasn't been mentioned as yet. It is the work in connection with cotton-gin fires. Perhaps the best way that I could get it before you is to read two or three pages of this statement.

The results which have been obtained through the investigation of cotton gins by us in Texas have been sufficiently encouraging to make it seem advisable to continue with this work until the cause of fires in cotton gins has been determined. The investigations have been conducted in the northwestern part of the State of Texas and in western Oklahoma. There is hardly a cotton gin in that section that goes through the season without some sort of a fire, if the season is a dry one. There are certain sections of the country where practically every gin will have experience with fires. They may have from two to four fires a day.

Mr. HEFLIN. What are the causes of these fires?

Dr. ALSBERG. We think that the main cause of these fires in cotton gins is the generation of electricity by the cotton itself in going through the conveyors and rubbing up against their walls. Now, these fires cause a great deal of damage in the dryer sections of the Southwest, especially when the season is a dry one. They have to have a man at the point where the fire is likely to happen, to watch out for it. He has to extinguish the fire, and every time they have a fire they had to shut down the gin.

Some of the cotton gets wet; some of it gets scorched; some of it gets burned up, so that a certain amount of cotton is lost; also they lose certain ginning time.

Mr. JACOWAY. Is it not a fact, with respect to these cotton gins, that it is almost impossible to get insurance?

Dr. ALSBERG. It is; and the only insurance they can get in some sections of the country is by mutual companies.

We have been investigating some of the causes of these fires. The insurance companies knew nothing about the causes—knew nothing of the origin of these fires—and we had the hardest time in the world in convincing some of the underwriters that we knew some of the causes of these fires that they had overlooked. We can be of assistance in saving in every dry year property running into the thousands and millions with a relatively small expenditure.

We did, during the last season, ground a number of gins in certain sections. They were equipped with grounding devices in Oklahoma and in northwestern Texas. As a matter of fact, we grounded 30 gins; and, so far as we know, we had only one fire in these gins, and the cause of that fire is unknown. The gins around in the neighborhood were having fires continuously.

The CHAIRMAN. That is largely educational work?

Dr. ALSBERG. We don't know, Mr. Chairman; we don't know the cause of all those fires; we need to carry on investigations.

The CHAIRMAN. It is largely educational?

Dr. ALSBERG. It is largely educational; yes, sir.

If any of you would like to see how a dust explosion is produced, if you will step out in the hall we will be glad to demonstrate it to you.

The CHAIRMAN. Thrashing-machine fires occur while the thrashing machine is running?

Dr. ALSBERG. Yes, sir.

The CHAIRMAN. Do they occur occasionally when the machine is standing idle?

Dr. ALSBERG. There may, of course, be fires when the machine is not in operation, but I have never heard of an explosion.

The CHAIRMAN. On the 4th of July last I passed a place near the District of Columbia at about 10 o'clock in the morning. The machine was standing idle, and the machine caught fire. What would you say was the cause of that fire?

Dr. ALSBERG. I would not know what that might have been. I could not say about that. It might have been caused by some oily waste or something of that kind.

Mr. JACOWAY. Doctor, are any fires occurring in cotton gins due to the fact that they gin excessively wet cotton?

Dr. ALSBERG. I haven't any information on that; I do not know. I should think that that would be a factor that would prevent the fires, because usually when the humidity is high there will be a drop in the number of fires; so I should think that that would work just the opposite.

Mr. Chairman, if the committee would like to see how these dust explosions occur, if they will step out in the hall, we will be glad to show them.

The CHAIRMAN. We will be glad to do so. Are you through with your statement?

Dr. ALSBERG. I am through.

The CHAIRMAN. Thank you, Doctor.

(A demonstration was given as to the inflammability of flour dust and mill dust.)

(See also statement of Dr. William A. Taylor relative to this item under the Bureau of Plant Industry section of these hearings.)

AFTERNOON SESSION.

FRIDAY, DECEMBER 19, 1919.

PER DIEM ALLOWANCE FOR TRAVELING EXPENSES.

STATEMENT OF DR. L. O. HOWARD, CHIEF OF THE BUREAU OF ENTOMOLOGY, DEPARTMENT OF AGRICULTURE.

Dr. HOWARD. Mr. Harrison has asked me to say a word in regard to a request of the Secretary for an increase in the subsistence and traveling expenses of the people for the whole department. You will find this set out in item 14, page 286, and item 15, page 287. This is a matter which intimately concerns every man in the department who travels.

Some time ago a letter was drawn up and signed by all of the bureau chiefs in regard to it and submitted to the Secretary, and I understand that the Secretary took the matter up at a Cabinet meeting and found that other department heads were making similar requests on Congress, and he himself has forwarded a request that the travel and subsistence allowances be increased from \$4 to \$6 a day and that the allowance for actual expenses be increased from \$5 to \$7 a day. I have traveled a great deal for the Government. I find that, although I only get \$4 back, it costs me from \$6 to \$7 a day to travel under present conditions. Some of my men, who are relying solely on their salaries, have great difficulty in getting along. Take my own case, for instance. You were good enough last year to raise my salary \$500 a year. I thank you. I appreciate it greatly. But if I travel much, as I should, that \$500 does not come to me.

The CHAIRMAN. It does not go to you?

Dr. HOWARD. Yes; it goes to the hotel men and not to me. I would like to add as a part of my statement to the Secretary a letter which was submitted to all the bureau chiefs and signed by them, in favor of an increase in the travel allowance.

(The letter referred to follows:)

WASHINGTON, D. C., September 4, 1919.

Memorandum for the Secretary.

DEAR MR. SECRETARY: A condition has developed in connection with the official travel which department employees are required to do in the prosecution of their work which recently has assumed serious proportions because of the statutory limitations on the amounts per day that can be reimbursed for such expenditure. At present the maximum reimbursement per day for subsistence expenses actually incurred is \$5, while the maximum per diem permitted in lieu of subsistence is \$4. While these amounts were fairly adequate when they were fixed by Congress in 1914, the rapidly increasing cost of subsistence during the past two or three years has left them quite inadequate, especially for subsistence in larger cities.

In our administration of the work of our respective bureaus we have been deeply impressed during the last few months with the injustice which these inadequate reimbursements of personal funds expended in the performance of official work by those of our men who are required to travel, and feel that the nonreimbursement of expenditure above these rates, which many of the most useful men of the department service experience, constitutes an injustice to them when they are engaged in field service. Not infrequently it occurs that the minimum cost of lodging and subsistence is from \$7.50 to \$9 or \$10 per day, where work in the larger cities is involved, so that the matter is of distinct financial importance to the individuals affected. It obviously is a source of dissatisfaction on the part of workers, which increases the difficulty of retaining qualified men in the service.

We realize that the existing statutory limitation is applicable to all employees of the Government and that it probably would not be practicable to secure legislation increasing the maximum rates for the Department of Agriculture alone. It has occurred to us, however, that in as much as other branches of the Government service are probably experiencing similar difficulty, that it might be possible through concerted action of the heads of the several departments to so present the question to Congress that the necessity for a reasonable increase would be recognized and authorized.

The necessity for increase over the existing maximum rates is not so much with respect to the larger portion of the department's travel expenditure, which, in the main, is in the smaller towns and farming districts, but in those types of work which necessitates considerable travel expense in the larger cities. If the rate could be left discretionary with the heads of departments, up to some carefully determined maximum, it is believed that economy of expenditure would in no way be jeopardized and that the efficiency of work through the retention of qualified experienced men in the service would be safeguarded.

Yours, very truly,

C. F. Marvin, Wm. A. Taylor, J. R. Mohler, L. O. Howard, Milton Whitney, C. L. Alsberg, H. S. Graves, W. C. Henderson, A. C. True, Thos. H. MacDonald, George Livingston, J. K. Haywood, C. L. Marlatt, H. C. Taylor, Leon M. Estabrook.

Dr. HOWARD. I have in mind many men who have traveled for the department who have had the same experience that I have had. I remember one man who told me that he had to pay \$225 out of his own pocket to make up the excess over and above what he got from the Government on a single trip to the Pacific coast; and his expenses were supposed to be paid by the Government.

The CHAIRMAN. There is no question but that expenses have greatly increased.

Dr. HOWARD. Yes. To a man who is getting a salary of only \$1,800 or \$2,000 a year, and who is subject to being sent to travel on investigations it becomes a serious matter.

Mr. McLAUGHLIN of Michigan. Please explain what "subsistence" and "per diem expenses" mean in these paragraphs.

Dr. HOWARD. We are allowed a per diem rate, if we keep an itemized account of every single item of expense, of \$5 a day. If we do not wish to keep all those accounts we are allowed a flat rate of \$4 a day. That is the present regulation.

The CHAIRMAN. If this was increased, would it apply to all or would it be allowed only in instances where necessary?

Dr. HOWARD. It would be allowed only where it was necessary. Of course, the Secretary or the bureau chief, in issuing the letter of authorization to a man to travel, if he is being sent into a territory where there are only small hotels and living is cheap would restrict him. This new provision allows the rate, where approved by the bureau chief or the Secretary of Agriculture, to go as high as \$6 per diem.

The CHAIRMAN. And that amount would be allowed only where it was needed?

Dr. HOWARD. Only where it was needed.

Mr. HARRISON. The per diem rates now allowed run all the way from \$1.20 a day to \$4.

Mr. McLAUGHLIN of Michigan. Give us an estimate of about what it is.

Mr. HARRISON. I could not give you an estimate as to the number who received the different rates, but I could give you the different scales.

The CHAIRMAN. Will you give the high allowance and the low allowance?

Mr. HARRISON. That depends on where the employees are traveling. If a man is going on a trip where he is required to cover the large cities, he would be allowed \$4. If he is traveling in rural districts, he would receive a per diem much lower than that.

The CHAIRMAN. If traveling in Iowa, for instance, what would he get?

Mr. HARRISON. If you will let me read this, I think it will give you the information you desire. This is quoted from a general letter of authorization to one of the bureau chiefs. [Reading:]

In directing travel under this authorization you may grant per diem in lieu of actual subsistence; but, in selecting the rate or rates applicable in any specific instance, due regard must be given to the character of the work to be performed, the section or sections of country to be visited, the time which will be spent in cities or other localities where living expenses are commensurate with those in cities, and such other circumstances as will, as nearly as practicable, insure the allowance of a rate which will not result in reimbursement in excess of actual and necessary traveling expenses as defined by the fiscal regulations of the department. For your guidance, the following per diem rates are prescribed for the character of travel indicated:

(1) Travel mainly in and between cities or towns where the cost of living is commensurate with that of cities.....	\$4.00
(2) Travel mainly in rural districts, involving stopovers of less than a week in any one place.....	3.50
(3) Travel mainly in rural districts, involving stopovers of more than a week in any one place.....	3.00
(4) Travel involving details at points away from the permanent headquarters of the traveler, such as temporary assignment to stations.....	2.50
(5) Travel by field parties (other than scouting parties).....	2.40
(6) Travel by scouting parties.....	1.50
(7) Camping parties, pack trains, and the like.....	1.20

(The rates prescribed in (4), (5), (6), and (7) shall be increased to \$3 during any period in excess of 24 hours in which travel by train or other common carrier is being performed.)

Provided, That for any day on which the travelling employee is in a subsistence status for a period of less than 24 hours the rates shall be as follows: If the subsistence status period is 6 hours or less, one-quarter of the rate selected by you from the schedule prescribed above; if more than 6 hours and not more than 12 hours, one-half of said rates; if more than 12 hours and not more than 18 hours, three-quarters of said rate; if more than 18 hours, said rate.

It is appreciated that unforeseen contingencies may operate to modify the circumstances under which your selection of a rate may have been made, but this shall not serve to affect the applicability of the rate to the travel. Factors of this character should receive appropriate consideration when the necessity for amendment of a travel authorization arises, but a rate once indicated in a letter of authorization should not be changed after travel thereunder has been performed.

Mr. McLAUGHLIN of Michigan. When a man renders his accounts, does he give an itemized statement of his actual expenses?

Mr. HARRISON. There are two plans. One is what is known as the "per diem in lieu of subsistence." Under that plan, the employee gets the per diem regardless of the expenditures he incurs, and he does not have to itemize his accounts. He simply claims the per diem, which has been fixed in advance, for the period covered by the travel.

The other plan is known as the actual-expense system, where the employee is required to itemize all his expenditures, and there is a limit of \$5 a day on the amount for which he may claim reimbursement.

The advantage of the per diem plan is that it saves a great deal of work in the auditing of accounts and, in the long run, I imagine it saves the Government some money.

Mr. McLAUGHLIN of Michigan. Who decides whether they shall receive the per diem allowance, which does not require the rendering of itemized accounts or the other plan?

Mr. HARRISON. The bureau chief usually determines that.

The CHAIRMAN. It has resulted in a saving?

Mr. HARRISON. It saves the time of the employee in keeping track of his expenditures and also a great deal of auditing and bookkeeping work.

The CHAIRMAN. I inferred from what Dr. Graves said that the Government furnished subsistence.

Mr. HARRISON. That is done only under certain conditions. For instance, in connection with survey parties in the national forests. Of course, when employees are furnished with subsistence they do not receive any per diem.

The CHAIRMAN. Have you anything else?

Dr. HOWARD. I have nothing else to offer.

The CHAIRMAN. We are very grateful to you.

MORNING SESSION.

THURSDAY, JANUARY 8, 1920.

STATEMENT OF DR. CARL L. ALSBERG, CHIEF OF THE BUREAU OF CHEMISTRY, DEPARTMENT OF AGRICULTURE.

The CHAIRMAN. What is next Dr. Alsberg?

Dr. ALSBERG. There is another factor that I wish to bring to your attention, and that is the per diem for travel. At present we have to travel on \$4 a day, irrespective of where or when or how. It is perhaps unnecessary to point out that certainly in the big cities, and usually in the medium-sized cities, it is impossible to travel on \$4 a day and break even. I have never succeeded in doing it.

Mr. McLAUGHLIN of Michigan. I wish you would explain for the record your different ways of compensating men for travel.

Dr. ALSBERG. There are only two—

Mr. McLAUGHLIN of Michigan. There is the per diem and the actual expenses?

Dr. ALSBERG. There are only two ways. A man is sent on a trip and we fix a flat daily rate which may be \$4 or less.

Mr. McLAUGHLIN of Michigan. That has nothing to do with his transportation?

Dr. ALSBERG. That does not include the transportation. It does not include his Pullman or certain special charges such as the Pullman porter fee and one or two items like that. The \$4 is allowed him for subsistence. That covers his room and lodging and his food and laundry. He gets in addition his railway expenses, his Pullman expenses, such things as porter fees, telegraphing, telephoning. Of course, if he has to use a team or requires a machine, that is not included in the per diem. The \$4 covers essential lodging, food, and laundry.

Mr. McLAUGHLIN of Michigan. Have you a way of sending your men out, allowing them the actual expenses and doing away entirely with the per diem allowance?

Dr. ALSBERG. Yes.

Mr. McLAUGHLIN of Michigan. I want to have that in the record.

Dr. ALSBERG. The other method consists of actual expenses. Under these circumstances the man is paid what he actually expends provided it does not exceed \$5. On the days that he expends more than \$5 he loses the difference. On the days that he expends less than \$5 he gets only what he expends.

Mr. McLAUGHLIN of Michigan. When a man is sent out do you determine by which plan he shall travel?

Dr. ALSBERG. In the Bureau of Chemistry we have in the last five years only followed the per diem for lodging and subsistence plan. We have not followed the actual expenses plan for the reason that we thought that we saved money by following the \$4 a day plan when we considered the great amount of bookkeeping that is necessary on the actual expense plan. An inspector, for example, every week when he makes up his expense account has to spend considerable time in making out the account when he is traveling on actual expenses of \$5. That account is sent in and audited. Several clerks must audit these accounts, and if there is some item that he is not entitled to the account goes back to the inspector; he has to explain it, and it comes back, and there is a lot of correspondence and clerical work and bookkeeping. We feel that when we take into consideration the bookkeeping expense, the loss of time of the men in making accounts, that it was more economical to follow the per diem plan, and that plan we have followed in the bureau exclusively for the last two years. It lies within the power of the chief of the bureau, subject to the approval of the secretary, to select the plan that he prefers or to have certain classes of employees follow one plan and certain other classes follow another plan. In our bureau we follow only the per diem plan for the reasons that I have given you. Our men now are complaining bitterly and stating that in most cases they are losing money when they travel. I think you will admit that traveling in large cities to-day on \$4 a day for room and board, where a man does not stay long enough to make special arrangements, means that he will lose money.

Mr. McLAUGHLIN of Michigan. What increase are you asking?

Dr. ALSBERG. The Secretary is asking for \$6 a day as a maximum for per diem in lieu of actual expenses, and \$7 a day as a maximum where actual expenses are paid.

Mr. HARRISON. Most of the other departments have made somewhat similar requests, the amount ranging as high as \$8.

Dr. ALSBERG. This does not mean, of course, that if Congress should grant the request that everybody would travel on \$6 and \$7. Where a man travels in the country through small towns with American plan hotels, the per diem would be less, according to the best judgment of the executive officer who had its determination. Three or four years ago we had men traveling on as low as \$1.50.

Mr. HARRISON. I inserted in the record the other day the present per diem rates, running from \$4 to \$1.20 a day, depending upon the section in which employees travel and the character of the work upon which they are engaged.

The CHAIRMAN. Does that include meals?

Dr. ALSBERG. No.

The CHAIRMAN. The meals are paid for out of the \$4?

Dr. ALSBERG. The meals are covered by the \$4.

The CHAIRMAN. How about porters' tips.

Dr. ALSBERG. A man puts that on the expense account and has an extra reimbursement for that. I have reference to the 25 cents you pay the porter when you spend the night on the train. It is limited to 25 cents for each 24 hours. I do not have reference to the tip you give the man at your meals; that goes as part of the subsistence. The tip you have to give hotel employees is regarded as subsistence. It is not allowed. On the other hand, if you have to take along heavy equipment or apparatus and have to employ the help of a porter at the railroad station to take care of that sort of thing, that is not counted in the \$4.

Mr. HARRISON. Nothing that is connected with transportation is included within the \$4, while everything that is connected with subsistence is included.

Dr. ALSBERG. Anything connected with food and lodging is included in the \$4. One of our inspectors recently resigned from the bureau, stating in his letter of resignation that he had kept a careful record of his expenses during the year. We have just received his resignation. He states that his actual living expenses while at home and traveling exceeded by \$300 the total of his salary and travel per diem which he received from the Government, and that was the reason he resigned.

AFTERNOON SESSION.

THURSDAY, DECEMBER 18, 1919.

**STATEMENT OF MR. HENRY S. GRAVES, FORESTER AND CHIEF
OF THE FOREST SERVICE, DEPARTMENT OF AGRICULTURE.**

The CHAIRMAN. Are there other items, Col. Graves?

Mr. GRAVES. There are several items in the miscellaneous portion of the estimates which apply to the entire department in which the Forest Service is interested. I presume you will not care to have

me discuss there in general, but I would like to express myself as feeling that they should be given serious consideration by the committee, because the experience of the Forest Service is the same as that of other bureaus.

On page 286, for example, is a request for increased authority for maximum travel expenses, increasing it from \$5 to \$7 per day. There are a great many circumstances in which it is not possible to keep within the present limit.

Mr. McLAUGHLIN of Michigan. What is it now?

Mr. GRAVES. Five dollars.

The CHAIRMAN. I believe all of us are familiar with the increased cost.

(See also statement of Mr. E. W. Nelson relative to this item under the Bureau of Biological Survey section of these hearings, also general statement of Mr. F. R. Harrison covering miscellaneous items.)

LEAVE FOR FIELD EMPLOYEES.

The CHAIRMAN. Next is item 16.

Mr. GRAVES. On page 287, item 16, is an item granting the Secretary discretion to give leave of absence to field employees up to 30 days. At the present time the field employees of the department are allowed only 15 days. I am interested in that, as about 90 per cent of the Forest Service employees are in the field.

The CHAIRMAN. They get only 15 days?

Mr. GRAVES. They get 15 days, while those who are in Washington are allowed 30 days. I never could feel that it was just to give the employees of the Government living in one city different privilege from those elsewhere; and I may say that in most of the departments, if not all of them, they grant the 30-day privilege.

Mr. HARRISON. Yes.

(See also general statement of Mr. F. R. Harrison covering miscellaneous items.)

CUMULATIVE LEAVE FOR EMPLOYEES IN INSULAR POSSESSIONS.

The CHAIRMAN. Do you desire to discuss item 17?

Mr. GRAVES. On page 288, item 17, is a provision which extends to the whole of the Department of Agriculture a privilege which is already granted to the States Relations Service, with regard to cumulative leave for employees assigned to permanent duty in Alaska, Hawaii, Porto Rico, Guam, and the Virgin Islands. We have employees in Porto Rico and in Alaska, and I would like to record my desire to see this privilege, which has been granted the States Relations Service, extended to our employees as well.

The CHAIRMAN. They are in the same territory?

Mr. GRAVES. Yes, sir.

(See also general statement of Mr. F. R. Harrison covering miscellaneous items.)

PROTECTION OF EMPLOYEES OF FOREST SERVICE AND BUREAU OF BIOLOGICAL SURVEY.

The CHAIRMAN. What is the next item?

Mr. GRAVES. On page 289, item 24, is a new provision extending to the officers or employees of the Forest Service and the Biological

Survey a privilege which has already been granted to the Bureau of Animal Industry.

Mr. ANDERSON. Wasn't this authority asked for all the employees of the Department of Agriculture last year?

Mr. HARRISON. We asked for it last year only in the case of the Bureau of Biological Survey, Mr. Anderson. Mr. McLaughlin raised the question the other day as to whether the provision should not be made applicable to some other branches of the service. Since that time I have looked into the situation and find that there are no other bureaus which especially need the authority, with the possible exception of the Federal Horticultural Board. This board has certain men engaged in the enforcement of quarantine regulations and the chairman tells me that it would be desirable to extend the authority to cover them.

Mr. ANDERSON. We extended some such authority as this with relation to the enforcement of several of the acts which are enforced by the Department of Agriculture.

Mr. HARRISON. You have in mind the authority included in appropriation bill, under the Bureau of Markets, with reference to the examination of books and papers and the calling of witnesses in connection with matters relating to the regulatory acts enforced by the department.

Mr. GRAVES. We have had several rather distressing incidents where forest officers in the pursuance of their duty have been attacked by some disgruntled person, and there has been no adequate redress. A short time ago, for example, one of our men, in the administration of one of the timber sales, had a difference of opinion in regard to the scale of logs. Our officer endeavored to adjust it amicably and reach an agreement by going out and looking over the ground with the man personally. He thought he had the matter settled, even though there was still some difference of opinion about it, but the following day this forest officer was attacked by the man without any provocation and given a severe beating up. The man was brought before a local court and was fined \$25. There was no other redress. Inasmuch as this authority has already been granted in the case of the Bureau of Animal Industry, I think it would be of benefit to extend it to the Forest Service as well as the Biological Survey.

Mr. CANDLER. What is the penalty?

Mr. JACOWAY. He may be fined not over \$1,000.

Mr. GRAVES. Or imprisoned for not over one year, or both.

Mr. CANDLER. You want to make an attack upon an officer in the discharge of his duty a Federal offense?

Mr. GRAVES. Yes, sir.

The CHAIRMAN. Is that all, Colonel?

Mr. GRAVES. Mr. Harrison has just handed me an item. Mr. Harrison, what is this?

Mr. HARRISON. It is a letter addressed to the chairman of the committee, in which we suggest the insertion in the bill of an additional provision giving certain employees of the Forest Service and of the Biological Survey power to arrest trespassers on bird reservations and on the forests in connection with the protection of game.

The CHAIRMAN. You desire it inserted in the record?

Mr. GRAVES. I would like to file it and urge its approval by the committee.

(The letter referred to follows:)

DEPARTMENT OF AGRICULTURE,
Washington, December 17, 1919.

HON. GILBERT N. HAUGEN,

Chairman Committee on Agriculture.

House of Representatives.

DEAR MR. HAUGEN: There is urgent need for legislation to authorize Federal wardens and forest officers to make arrests and otherwise enforce the laws and regulations for the protection of game on Federal game preserves or reservations.

The only existing statute authorizing officers of the department to make arrests for violations of the laws and regulations governing these reservations is the act of February 6, 1905 (33 Stat., 700). This act authorizes persons employed in the Forest Service to make arrests for violations of regulations relating to forest reserves. This, however, is not broad enough to cover violations of the laws for the protection of game within the game preserves or reservations.

That the need for this legislation is urgent is shown by the following circumstances which have come about during the last few months on the Pisgah National Forest, which was established by presidential proclamation on October 17, 1916, and on the National Bison Range, in Montana, authorized by act of Congress of May 23, 1908 (35 Stat., 251), and amended by act of March 4, 1909 (35 Stat., 1039), and on the Winter Elk Refuge, in Wyoming, established by act of Congress of August 10, 1912 (37 Stat., 293), and act of March 4, 1913 (37 Stat., 828).

The Pisgah game preserve is administered by the Forest Service and the other two by the Bureau of Biological Survey.

Recently Forest Guard Weldon English in the course of his patrol discovered a hunter in possession of the carcass of a deer within the Pisgah game preserve. Not having authority to arrest the man and take him before a magistrate, he did the only thing possible under his authority, namely, took the man's name and address and reported the trespass to his superior officer. It turned out that the name and address were fictitious, and, as a consequence, this flagrant violation of the law escaped punishment. The trespasser is still at large, with little or no hope of his apprehension. Soon after this a game warden found two men on Rich Mountain, a section within the game preserve in which deer are very abundant; they, too, gave assumed names and fictitious addresses, and thereby managed to escape arrest and trial.

Less than three weeks ago a case was called in the Federal court at Asheville, N. C., in which the United States district attorney asked for a nolle prosequi, stating that the name "Herman Bailey," given by the trespasser to the game warden who discovered the trespasser, could not be found.

On November 26 Game Warden Ashe, employed to protect the Pisgah game preserve, while on the preserve in the discharge of his duties and trying to prevent trespass was shot and severely injured by one Andrew Jackson on Beaver Dam Creek, near Candler, N. C. Since the game warden did not have the power to arrest, no charge of resisting arrest can be lodged against Jackson, and he can not be brought to trial before a Federal court.

The better class of people, particularly those in western North Carolina, who took an active part in bringing about the establishment of the Pisgah game preserve, are keenly interested in the protection of the game within the area. This protection can hardly be had unless the officers charged with the care of the game preserves are authorized to arrest those who violate the regulations governing it.

During the past year, on the Montana Bison Range, 10 antelope have disappeared. One carcass was found partly dismembered, the hams having been cut off and carried away, indicating very clearly that the animal had been killed by a poacher. Careful search of the reservation failed to reveal the remains of the others, and it is believed that most of them were killed and carried away by poachers. At present there are 35 antelope remaining on this refuge, but, unless it is possible to prevent poaching, the future outlook for the protection of these interesting and rapidly disappearing animals, as well as the other game animals on this and other reservations, will be impossible. The original supply of ante-

lope on this refuge was purchased and donated to the Government by sportsmen's organizations. These animals are extremely valuable, and it would be deplorable if they could not be properly safeguarded.

On the winter elk refuge near Jackson, Wyo., recently, one of the elk being fed on the Federal refuge was shot and killed by a local hunter. I am advised by the solicitor's office that the action of the hunter in killing this animal was not a violation of any Federal statute, although the refuge is maintained at considerable expense to the Government for the express purpose of feeding the elk, which are driven there by hunger in severe winter weather.

These occurrences emphasize the importance of having suitable Federal legislation enacted to protect the animals and Government property on the bird and game refuges.

The Forest Service is charged with the administration of several game refuges located in the national forests. The Bureau of Biological Survey is charged with the administration of 74 national reservations, 5 of which, including the Niobrara refuge, which was originally created as a bird reservation, are big game preserves and the remaining 69 are bird reservations. On the big-game preserves the Government maintains, in the aggregate, a large number of animals, including buffalo, elk, deer, and antelope. In the administration of these reservations there have been constructed necessary fences, wardens' quarters, and other buildings. Other Government property is located on the reservations, including horses and farming equipment used in the production of hay and other forage crops. Injury to or destruction of this property would not, as it is understood, constitute a violation of any Federal statute. It is manifest that these reservations should be protected by suitable penal statutes.

Section 84 of the Penal Code makes it a misdemeanor to hunt, trap, capture, willfully disturb, or kill birds of any kind, or to take the eggs of any such birds on any lands of the United States which have been set apart or reserved as breeding grounds for birds, except under rules and regulations prescribed by the Secretary of Agriculture. There is no similar statute protecting the big-game preserves and there is no penal statute prohibiting any act of trespass upon the bird reservations which could not be shown to be a violation of section 84 of the Penal Code. The bird reservations are scattered from Florida to Alaska. Most of these in the United States are small in area, while several of those in Alaska are quite extensive. Some of them, particularly in the United States, are visited each year by large numbers of people who go there for recreation, as in the case of Sullys Hill National Park; some for the purpose of fishing, as in the case of the Big Lake Reservation in Arkansas; others, perhaps, for the purpose of observing the habits of the birds on the reservations. On most of the reservations visitors should be permitted under proper supervision. The department, however, should have the authority to make regulations for the administration and protection of these reservations similar to the power vested in the Secretary by the act of June 4, 1897 (34 Stat., 11), applicable to the national forests; and the employees of these bureaus should have the power to make arrests similar to that conferred upon employees of the Forest Service by the act of February 6, 1905 (35 Stat., 700).

To meet this situation I urgently recommended that the following provision, a separate copy of which is attached, be included in the miscellaneous section of the agricultural appropriation bill for the fiscal year 1921:

"And hereafter all lands of the United States heretofore or hereafter reserved or set aside by law, proclamation, or Executive order for use of the Department of Agriculture for breeding grounds for birds or as ranges, refuges, or reserves for wild animals shall be controlled and administered in accordance with the following provisions: The Secretary of Agriculture is hereby authorized and directed to make provisions against depredations upon such reservations and the molestation or destruction of the birds and other wild animals thereon, and he may make such rules and regulations and establish such service as will insure the objects of such reservations, namely, to regulate their use, to prevent depredations thereon, and to preserve the birds and other wild animals thereon from molestation and destruction; and whoever shall violate any of the provisions of this act or of such rules and regulations shall be fined not more than \$500 or imprisoned not more than six months, or both; but nothing herein contained shall prohibit any person from entering upon such reservations for all proper and lawful purposes, provided that such persons comply with the rules and regulations covering such reservations. Employees of the Department of Agriculture designated by the Secretary of Agriculture for the purpose shall have authority to make

arrests for violations of the laws and regulations relating to the aforesaid reservations, and any person so arrested shall be taken before the nearest United States commissioner within whose jurisdiction the reservation is located, for commitment; and upon sworn information by any competent person, any United States commissioner within the proper jurisdiction shall issue process for the arrest of any person charged with the violation of said laws and regulations."

Very truly, yours,

D. F. HOUSTON, Secretary.

(See also statement of Mr. E. W. Nelson relative to this item under the Bureau of Biological Survey section of these hearings.)

AFTERNOON SESSION.

WEDNESDAY, JANUARY 14, 1920.

STATEMENT OF MR. F. R. HARRISON, ASSISTANT TO THE SECRETARY, DEPARTMENT OF AGRICULTURE.

DIVISION OF ACCOUNTS AND DISBURSEMENTS.

The CHAIRMAN. What is next, Mr. Harrison?

Mr. HARRISON. We have not yet discussed the estimates of the Division of Accounts and Disbursements. They provide for only one change in the statutory roll—the addition of five clerks at \$1,200 in item 9, page 191. As I am sure the committee will appreciate, the work of the division has very greatly increased with the growth and development of the activities of the department, and additional assistance is urgently required in order to keep the work current and up to date.

EXCHANGE OF PARTS OF AUTOMOBILES.

With few exceptions, all the items under the heading "Miscellaneous" have been referred to at different stages of the hearings.

Item 7, on page 281, relates to the exchange of parts of automobiles. We are simply asking that you give us authority to exchange used parts, accessories, tires, and equipment in part payment for new parts, accessories, tires, and equipment. We now have similar authority with reference to the exchange of passenger-carrying vehicles and typewriters. At present the department is compelled to pay the full market price for replacement parts. Manufacturers of automobile tires, as you know, guarantee a certain mileage for each tire and usually agree to exchange and make replacement upon a mileage basis if any tire fails to furnish its guaranteed service. Automobile storage batteries are guaranteed for a definite period, usually one and a half or two years. When replacements are necessary, the old batteries have an exchange value of which private owners and commercial houses avail themselves. Similar conditions prevail in respect to many other important parts of automobiles, but the department, under existing law, is unable to take advantage of the exchange privilege. It is compelled to condemn old parts or accessories, sell them for what they will bring, turn the proceeds into the Treasury, and pay the full price for new parts or accessories. It is

believed that, if the authority proposed is granted, it will result in considerable saving to the Government in many directions.

The CHAIRMAN. You ask for the same authority for exchanging parts of automobiles that you now have for exchanging entire automobiles?

Mr. HARRISON. For authority similar to that which we now have with reference to the exchange of typewriters and passenger-carrying vehicles. We are now authorized, as I have indicated, to exchange old passenger-carrying vehicles in part payment for new machines, but we can not do this with reference to old parts and accessories.

PURCHASE AND MAINTENANCE OF MOTOR VEHICLES.

The paragraph relating to motor-propelled and horse-drawn passenger-carrying vehicles, item 6, on page 274, as you know, does not appropriate any money. It merely gives authority to expend a specified amount of the funds included in the appropriation bill for the purchase, maintenance, repair, and operation of motor-propelled and horse-drawn passenger-carrying vehicles. A similar provision has been included in the bill for several years and is made necessary by the act of July 16, 1914 (38 Stat., 454), which prohibits any expenditures for the purposes indicated without specific authority from Congress. The note under the item sets forth fully what we propose to do with the amount suggested in the authorization, and I do not think that it needs any further discussion.

PER DIEM ALLOWANCE FOR TRAVELING EXPENSES.

The various chiefs of bureaus, as they have appeared before the committee, have discussed item 14, on page 286, and item 15, on page 287. Their purpose is to increase the amounts that may be paid, both for per diem in lieu of subsistence and for actual expenses, to employees traveling on official business. The act of August 1, 1914 (38 Stat., 609), now limits the per diem allowance to \$4, and the act of April 6, 1914 (38 Stat., 312), limits the actual expense allowance to \$5. We are suggesting that the former be increased to \$6 and the latter to \$7. The committee, I think, fully appreciates the necessity for these changes. They are made necessary by the great increases that have occurred during the past two or three years in the cost of traveling. As I have already pointed out, if the committee adopts the recommendation of the department, all employees traveling on official business will not be paid \$6 or \$7, as the case may be. The rate will be fixed in each case according to the character of travel to be performed and the conditions prevailing in the section or sections of the country to be visited.

LEAVE FOR FIELD EMPLOYEES.

There is another item on page 287, No. 16, in which we suggest that you authorize the department, in the discretion of the Secretary, to grant 30 days' annual and 30-days' sick leave to field employees. Under the present law these employees are limited to 15 days' annual and sick leave, while employees in Washington may be allowed 30 days.

Mr. TINCHER. What do you think about that proposal to grant 30 days' leave to field employees instead of 15 days when there is such a great shortage of labor everywhere?

Mr. HARRISON. The purpose of the item, Mr. Tinchler, is merely to place the field employees on exactly the same basis as the employees in the city of Washington. It seems to us that it is merely a matter of justice to our field employees. I may say, in this connection, that, as I understand it, annual leave is granted on the theory that the more time an employee has for rest and recuperation the better service he is likely to render during the remainder of the year. The field employees of many branches of the Government service, as indicated in the note under the item, now may be granted 30 days' leave, and we think our employees ought to have the same privilege.

CUMULATIVE LEAVE FOR EMPLOYEES IN INSULAR POSSESSIONS.

There is still another item, Mr. Chairman, No. 17, on page 288, which relates to cumulative leave of employees of the department in Alaska and the insular possessions. You will recall that last year, upon the recommendation of the department, the following provision was inserted in the appropriation bill

Provided further, That hereafter employees of the Department of Agriculture assigned to permanent duty in the Virgin Islands shall be entitled to the same privileges as to leave of absence as are conferred upon employees assigned to Alaska, Hawaii, Porto Rico, and Guam by the act of June 30, 1914 (38 Stat., p. 441), and if any employee of the agricultural experiment stations of the United States, in Alaska, Hawaii, Porto Rico, Guam, or the Virgin Islands shall elect to postpone the taking of any or all of the annual leave to which he may be entitled under the said act of June 30, 1914, he may, in the discretion of the Secretary of Agriculture, subject to the interests of the public service, be allowed to take at one time unused annual leave which may have accumulated within not to exceed four years, and be paid at the rate prevailing during the year such leave of absence has accumulated.

This provision, as you will note, authorizes the Secretary, in his discretion, to permit employees of the agricultural experiment stations in Alaska, Hawaii, Porto Rico, Guam, and the Virgin Islands to "take at one time unused annual leave which may have accumulated within not to exceed four years." The purpose of item 17 is to extend the same privilege to employees of other branches of the department, including especially the Forest Service, the Weather Bureau, and the Bureau of Chemistry, all of which have employees either in Alaska or in one of the insular possessions.

This completes the consideration of the estimates, Mr. Chairman. I want to take this opportunity to express our appreciation of the patience with which the committee has listened to the discussion of the various items and of the generous amount of time you have given us in which to present them. We hope that you will be equally generous when you come to act upon the department's recommendations.

The CHAIRMAN. We are very grateful to you for the comprehensive manner in which you have presented the estimates, Mr. Harrison.

Mr. HARRISON. It has been a real pleasure to meet with the committee, and I shall, of course, hold myself in readiness at all times to render any assistance you may desire.

The CHAIRMAN. We will do the best we can to meet the suggestions and the requirements of the department. We thank you very much.

(Thereupon, at 6 o'clock, the committee adjourned.)

AFTERNOON SESSION—Continued.

COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Wednesday, January 14, 1920.

VITICULTURAL INVESTIGATIONS IN CALIFORNIA.

The committee met, pursuant to recess, Hon. Gilbert N. Haugen (chairman), presiding.

The CHAIRMAN. You may proceed, Dr. Taylor.

STATEMENT OF DR. WILLIAM A. TAYLOR, CHIEF OF THE BUREAU OF PLANT INDUSTRY, DEPARTMENT OF AGRICULTURE.

Mr. McLAUGHLIN of Michigan. You have a rather disagreeable situation in California now where you had some experiment stations on raisin lands, and where the leases have expired. I understand you have very extensive improvements there that will be lost unless the Government pays a large amount of money to acquire the title.

Dr. TAYLOR. That is not in the nature of buildings. It is the planted vines. The Government's interest there is wholly in the perennial crop which is established on the lands.

Mr. McLAUGHLIN of Michigan. Has not the Government erected some of the buildings on the land?

Dr. TAYLOR. No, sir; not even a shack or a fence. There are certain trellises for the grapevines.

Mr. McLAUGHLIN of Michigan. Mr. Curry, of California, is very much interested in the proposition out there. Have you ever made a statement in regard to that to this committee?

Dr. TAYLOR. No, sir. That is a feature which has developed in its acute form within the last few weeks, since it has become evident that the effect of the prohibition amendment will be to radically and permanently change a very large part of the California viticultural industry; so that many of the owners of vineyards that were planted specifically with wine grapes, which are of doubtful value for other purposes, are going out of grape production and disposing of their holdings. This leaves the department unprotected in that feature of its experimental work.

Mr. McLAUGHLIN of Michigan. Is it desired that you carry on some experiments out there?

Dr. TAYLOR. What the viticultural industry has in mind as desirable to do is the continuation of the work which the department began under reimbursement contracts, not under leases, but under contracts under which experiment vineyards were planted upon privately-owned lands. The owners of the lands were at that time maintaining large vineyards alongside and making available their full

personnel of skilled labor and their full equipment of horses, implements, facilities, buildings, and all that for the department's use.

Mr. McLAUGHLIN of Michigan. I have understood that if the Government gave that up, did not make an appropriation and acquire title to the property, the Government would suffer a large financial loss.

Dr. TAYLOR. The financial loss would be through the interruption of the investigational work practically at its highest point of efficiency and promise of useful results.

Mr. McLAUGHLIN of Michigan. The Government would not have a loss by stopping the work?

Dr. TAYLOR. No; except through the impairment of results by premature termination of the investigational work.

Mr. McLAUGHLIN of Michigan. Is there not some property that would be of some value if your work is continued but which, if you stopped your work, would fall into disuse and waste?

Dr. TAYLOR. No; if we stop our work the property would immediately be devoted to other uses, commercial in lieu of experimental.

Mr. McLAUGHLIN of Michigan. Does the Government claim title to all that is growing on the land?

Dr. TAYLOR. We have full contract ownership in the plant material on the land.

Mr. McLAUGHLIN of Michigan. Stuff that can not be removed?

Dr. TAYLOR. Yes.

Mr. McLAUGHLIN of Michigan. If you quit your work, you cripple it, and your experimental plantings would go to the owners of the land?

Dr. TAYLOR. Yes; and it has no commercial value to them or anyone as a profit-producing plantation.

Mr. McLAUGHLIN of Michigan. How much money was it suggested that you use out there?

Dr. TAYLOR. I have had that very carefully studied and estimated within the last few days, and, while I have not the figures here, my recollection is that the purchase and equipment would involve an expenditure of \$87,750.

Mr. McLAUGHLIN of Michigan. That would enable you to acquire title in fee to how much land?

Dr. TAYLOR. About 30 acres in one holding in northern California, where the Oakville vineyard is, and about 36 acres near Fresno, where the more southern vineyard is; including also the provision of water supply, fencing, and the erection of three or four necessary buildings at each place; also provision for such implements and operating equipment as the department would have to own.

Mr. McLAUGHLIN of Michigan. Must this \$87,000 be put up to acquire title and make all the improvements that you speak of?

Dr. TAYLOR. Yes, sir.

Mr. McLAUGHLIN of Michigan. That is for the purpose of experimenting and determining whether or not some other use can be made of the products of the soil—the vines, and so on—out there?

Dr. TAYLOR. Yes, sir; including the continuation of the work which was started, not for that purpose, but for the insuring of an enduring vineyard industry at a time when it was threatened with destruction by phylloxera.

Mr. McLAUGHLIN of Michigan. The endurance, if that is the proper use of the word, of the vineyard was dependent on the use of the fruit for wine, was it not?

Dr. TAYLOR. Partially. The fundamental questions are the same as they have been, namely, the determination of the desirable varieties of grape stocks to be grown there in the presence of the root-destroying phylloxera, an insect which can be combated only by growing the fruiting varieties grafted on phylloxera-resistant stocks. The first question to determine is what phylloxera-resisting stocks will endure and thrive there for sufficient time to base an enduring industry on, and, secondly, which ones of these stocks are congenial enough to the various fruiting varieties, such as those from which they make raisins and those from which we expect also we shall be able to make the "currants" which we have been importing by many millions of pounds from Greece.

Mr. McLAUGHLIN of Michigan. Are you able to estimate the length of time that will be required to carry on the experiments?

Dr. TAYLOR. We have not undertaken to look into the future that far. Roughly, I should say, however, that it would be approximately 30 or 40 years in total. We now have been working approximately 15 years.

Mr. McLAUGHLIN of Michigan. It would require a long time and involve considerable appropriation each year?

Dr. TAYLOR. It is a long-time task, and the maintenance of it, additional to this acquisition of the land and the providing of the necessary permanent improvements, would involve an increase in our present appropriation for the operation of the viticultural work, which is \$20,000 to \$27,500, an increase of \$7,500. So that the initial purchase and improvement appropriation would be \$87,750 and the continuing appropriation for maintenance and operation would be \$7,500 more than it now is, making a total of \$115,250.

Mr. McLAUGHLIN of Michigan. If 15 years is the length of time to determine whether or not that is a success or not, you have lost your entire investment if it is a failure at the end of that time, have you not?

Dr. TAYLOR. In terms of vines; but we will have it in terms of useful knowledge; that is, the farmers and the country will have it.

Mr. McLAUGHLIN of Michigan. Will the land or the structures be worth anything?

Dr. TAYLOR. The land presumably would be worth what it is to-day.

Mr. McLAUGHLIN of Michigan. Then, what is the use of doing anything if the land is going to continue of equal value or at a value equal to what it is to-day?

Dr. TAYLOR. You understand that what I say as to land values is a random guess.

Mr. McLAUGHLIN of Michigan. On the information I got, unless you discover something to save that country out there, the land will not be worth anything.

Dr. TAYLOR. You mean the wine-grape lands in general. I missed your point, Mr. McLaughlin. I thought you were referring to the land in these particular experiment vineyards. Your question re-

lated to the value of vineyard lands—the 175,000 acres now planted with wine grapes.

Mr. McLAUGHLIN of Michigan. No; you are going to acquire certain lands out there for the purpose of carrying out experiments to see whether or not something can be done to save that country—the establishment of some industry along the fruit line which is threatened on account of the prohibition amendment.

Dr. TAYLOR. Yes.

Mr. McLAUGHLIN of Michigan. If you are successful, the value of those lands will be kept up?

Dr. TAYLOR. Oh, yes.

Mr. McLAUGHLIN of Michigan. If they are unsuccessful, your first answer was that the lands are worth just as much at the end of the time as they are now.

Dr. TAYLOR. I was referring to these particular tracts, the 30 and 36-acre tracts, that we are now using, which, while of the same general character as the wine-grape vineyards on the side hills, because of their location are not subject to the same changes in value as the lands on which a large proportion of the wine-grape vineyards are located. Your question, I see, had to do with the value of these 175,000 acres of wine-grape vineyards—the land now in wine vineyards. The wine vineyards are for the most part located on lands off the valley floors, and up to the present time no other successful agricultural use has been found for them. Vineyards grow well there, and it is the value of the vines on those lands that gives the value to the property and not the soil itself.

Mr. McLAUGHLIN of Michigan. Unless you discover something of value for them, those lands will fall materially in value, will they not?

Dr. TAYLOR. Inevitably. I should say, for they are lands which in a very large degree are not suitable for any other profitable agricultural or horticultural use that has been discovered.

Mr. McLAUGHLIN of Michigan. And up to this time, on account of the use of the products of the soil, the lands have been very valuable?

Dr. TAYLOR. Fairly valuable, and fairly profitable to a large number of farmers who settled there specifically to raise grapes for wine and brandy production, expecting that that condition would continue.

Mr. McLAUGHLIN of Michigan. Mr. Curry of California has spoken to me about the matter two or three times. He is very much interested in it, and he sees trouble if this is not done, falling values, and loss to his people; but I believe he has talked with you and others of your department, and he is very hopeful that something may be done and is anxious to have an effort made by the Government to do something.

Dr. TAYLOR. I have not discussed the matter with Mr. Curry, but the department has received appeals from thoroughly representative organizations in California in considerable number during recent weeks. As the result of a careful study of the existing conditions, I think we are in a position to furnish the committee a very definite statement of what would be required to meet the situation as we see it.

Mr. McLAUGHLIN of Michigan. Mr. Curry himself is not very well. I suggested that he come over and make a statement to the committee. At the time I suggested that he did not feel able to come. He may be able to come later, but, on account of his great interest and you being here, I thought I should ask you to tell us about it. Do you want to make any further statement about it?

Dr. TAYLOR. I think a definitely particularized statement would be more illuminating than what I might say offhand. We could furnish that to the committee if it is desired.

Mr. McLAUGHLIN of Michigan. I do not know enough about it to bring out all the facts. I ask questions rather at random.

The CHAIRMAN. Doctor, is the purpose of the investigation to ascertain the value of the land for other purposes than growing grapes?

Dr. TAYLOR. No; rather to determine whether it is not possible to produce and utilize types of grapes other than the wine grapes, which now constitute practically the sole investment.

The CHAIRMAN. When the prohibition law was under consideration there was great concern shown over the grape industry of California. Are grapes now worth more than ever before, and are they selling at higher prices?

Dr. TAYLOR. That has been true of the table and raisin grapes, which constitute a very large and important element of the total production of grapes in California.

The CHAIRMAN. Will that be true in the future?

Dr. TAYLOR. It is the wine-grape industry, in distinction from the table grape and raisin industries, that is jeopardized. The grapes of California are almost entirely of the old-world type (*Vitis vinifera*), the vine of the Scriptures, and of the whole south European and Mediterranean country. These grapes are, in the main, of three different types. One of those is used chiefly for and is chiefly adapted to raisin production. Another is—

The CHAIRMAN. What is done with the wine grape now?

Dr. TAYLOR. The wine grapes are the juicy and rather seedy ones, for which no other important use than wine and brandy production has yet been discovered, unless there should be developed some "moonshine" use, which is not impossible, or some underground system of marketing in the shape of a dried or otherwise preserved product suitable for wine or brandy making. It would not be raisins.

The CHAIRMAN. Do you know what they are being used for?

Dr. TAYLOR. This year a considerable quantity of them have been dried. A considerable quantity, some 4,000 carloads, have been shipped East in the fresh state, in the condition in which they were when taken from the vineyards, for whatever use the ultimate purchaser cared to make of them. Some of these are known to have been used for the production of wine in eastern cities.

The CHAIRMAN. Are they selling at higher prices than before?

Dr. TAYLOR. I do not think that is true of the wine grapes generally.

Mr. McLAUGHLIN of Michigan. I do not think that is true of the wine grape.

Mr. TINCHER. One Congressman claims they do.

COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Friday, January 16, 1920.

**SPECIAL HEARINGS ON VITICULTURAL INVESTIGATIONS IN CALIFORNIA
REQUESTED BY MEMBERS OF THE CALIFORNIA DELEGATION IN
CONGRESS.**

The committee assembled at 10.30 o'clock a. m., Hon. Gilbert N. Haugen (chairman) presiding.

The CHAIRMAN. At the request of a number of members of the California delegation we have reopened the hearings so as to give them an opportunity to be heard on item 102, page 95, which is as follows:

For the investigation and improvement of fruits, and the method of fruit growing, harvesting, and, in cooperation with the Bureau of Markets, studies of the behavior of fruits during the processes of marketing and while in commercial storage, \$88,200: *Provided*, That \$20,000 of said amount may be used for investigating and developing new grape industries and methods of utilizing grapes heretofore used for the production of alcoholic beverages, \$88,200.

Do you desire to be heard first on the item, Representative Barbour?

Mr. BARBOUR. We have some representatives of the Department of Agriculture here, Mr. Chairman, and they will be able to present this matter much more intelligently than the Members of Congress from California can.

The CHAIRMAN. The matter has been fully covered by the representatives of the department. However, some of the representatives are here. Would you prefer to have the committee hear them first?

Mr. BARBOUR. I think they can cover the whole matter, so that it will not be necessary for you to hear from the Members of Congress.

The CHAIRMAN. Dr. Taylor, will you testify first?

Dr. TAYLOR. You will remember that just before the close of the hearings day before yesterday some questions were asked by Mr. McLaughlin which I could not answer at that time.

The CHAIRMAN. It has been suggested that some one from the department having this work in charge be given an opportunity to supplement what has already been said. Do you care to be heard further on the item and answer the questions referred to?

**FURTHER STATEMENT OF DR. WILLIAM A. TAYLOR, CHIEF OF
THE BUREAU OF PLANT INDUSTRY, DEPARTMENT OF AGRICULTURE.**

Dr. TAYLOR. I have prepared and have here a succinct and comprehensive statement of the situation with respect to the existing experimental vineyards in California, the purchase of which was the subject of Mr. McLaughlin's questions.

The CHAIRMAN. Dr. Husmann, who is in charge of that work, is here this morning, is he not?

Dr. TAYLOR. Yes, sir; Mr. Husmann, who has immediate charge of that work, is present.

The CHAIRMAN. Does he wish to be heard?

Mr. HUSMANN. I think if Dr. Taylor is allowed to read his statement it will cover the matter very completely.

Dr. TAYLOR. It is about seven typewritten pages, and, if it is agreeable and the committee desires it, I will read this statement, as I think it would be shorter than an offhand statement.

The CHAIRMAN. We will be glad to hear the statement.

Dr. TAYLOR. The profound changes now in progress in the viticultural industry of the Pacific coast, as a result of the adoption of the eighteenth amendment, make it necessary to consider radical changes in the viticultural work of this bureau, which has been in progress for a number of years. When this work began a number of years ago the dominant phase of the industry was the production of wines and brandies, though there was also a large production of raisins and table grapes in certain sections. The varieties of grapes involved are practically all of the Old World type (*Vitis vinifera*) which is not successfully grown in the open air to any extent east of the Rocky Mountains. Some of the most complex and important problems are those involved in the determination of the adaptability of phylloxera resistant stocks to the radically different soil and climatic conditions of the important grape-growing districts, the varieties producing desirable fruit requiring to be grafted upon such stocks to be successfully grown in the presence of this root-destroying insect. These varieties constitute the sole sources of our national supply of American-grown raisins, now amounting to about 300,000,000 pounds of raisins per annum, and the entire table-grape production of California, the shipments of which now amount to from 180,000 to 200,000 tons per year. In addition to the fruit marketed in these forms, from 300,000 to 550,000 tons per annum have heretofore been utilized for the manufacture of wines and brandies. Much of the fruit thus utilized is of varieties developed especially for these purposes and not suitable for other known uses. Apparently the vines producing this fruit must be grafted over (where possible) or replaced with table or raisin varieties if the industry is not to be disastrously damaged and many of the wine-grape growers financially ruined.

In view of the resolutions passed by the Sacramento Valley Development Association, the California State Association of County Horticultural Commissioners, the California Fruit Exchange, and the fifty-second State fruit growers' and farmers' convention transmitted by Senator Phelan, Representative Kahn, and others, urging that the cooperative experiment vineyards which for a number of years have been maintained by this bureau at Fresno and Oakville, Calif., be purchased by the Government and equipped and maintained permanently as field stations, a careful study has been made of the existing situation with a view to intelligently estimating what the cost of such purchase would be, and also the cost of equipping and operating these vineyards as department field stations.

The experiment vineyards in question comprise 20 acres at each place. The plantings have been made progressively during the past 15 years on privately owned land under contracts through which the owners made the land available to the department without rental, the owners furnishing the necessary labor, equipment, team power, etc., for use as needed, and being reimbursed by the department in the actual cost of the labor, etc., as required for the effective carrying

on of the numerous experiments under way in them. This arrangement, when made, of course contemplated a continuance of the then existing and steadily enlarging wine and brandy industries in which the owners of the land were largely engaged. A large part of the experimentation, however, was with grapes intended for raisin, "currant," and table-grape utilization in addition to those grown exclusively for wine and brandy production. The vineyards now contain approximately 700 varieties of resistant-stock and edible fruited varieties collected from all the vine-growing regions of the world and constitute the largest and most valuable collection of grape varieties now known to exist.

As the owners of these particular tracts are going out of business as grape growers, and selling off their land, it is evident that if these very valuable collections of vines are to be maintained during the critical period of reconstruction of the grape industry which the adoption of the constitutional amendment has made necessary, they will need to be taken over and operated by the department or some public agency.

As accurate estimates as are practicable of the probable cost of the land in each vineyard, and of the improvement and equipment which would be necessary for their effective operation by the department have been prepared. While only 20 acres of land at each place have thus far been controlled by the department, it would be highly desirable that about 16 acres additional at Fresno and 10 acres additional at Oakville be obtained to provide for necessary enlargements and readjustments of the experimental work now under way and contemplated. These estimates which cover the purchase of the land and the provision of necessary improvements and equipment to make possible the effective independent operation of each experimental vineyard indicate that \$47,900 would be required for the Oakville vineyard and \$39,850 for the one at Fresno. The improvements essential to the effective operation of the vineyards, such as a barn, cottage and small laboratory at each place, and a dry house at Oakville which would need to be provided, should be largely of concrete construction. While somewhat more expensive than wood, under existing conditions in California, it is regarded as cheaper in the long run because of lower upkeep.

Maintenance and operation of the vineyards by the department will make necessary the purchase of certain equipment including a tractor, scales, plows, harrows, cultivators, hand tools, lug boxes, drying trays, and a light motor truck at each place, the estimated cost of which is \$3,550 for Fresno and \$3,350 for Oakville.

The details of the estimates for the two vineyards are shown on the enclosed sheets.

The CHAIRMAN. What is your estimate on buildings at Fresno?

Dr. TAYLOR. At Fresno, a laboratory building, estimated to cost \$3,500, a barn, \$2,500, and a cottage, \$4,500.

Mr. McLAUGHLIN of Michigan. Would the amount that you estimate for the laboratory equip it and supply it?

Dr. TAYLOR. Yes, sir.

The CHAIRMAN. For what is the barn to be used?

Dr. TAYLOR. Chiefly as housing for implements and storage for the lug boxes and other paraphernalia of vineyard operations.

The CHAIRMAN. It would practically be a storehouse, would it not?

Dr. TAYLOR. Yes, sir; there would be no farm crops grown. [Reading:]

The land values are estimated on the basis of recent sales in the near vicinities of the vineyards.

The CHAIRMAN. In that case what was the selling price?

Dr. TAYLOR. In that case, it is \$600 an acre, in the near vicinity of Fresno city.

Mr. YOUNG. Are these people who are in the vineyard business selling out?

Dr. TAYLOR. Yes, sir.

Mr. YOUNG. On the basis of \$600 an acre for that particular transaction?

Dr. TAYLOR. Yes, sir.

Mr. YOUNG. If they are going out of the vineyard business, what is the present purchaser figuring on doing with that valuable land?

Dr. TAYLOR. As I understand it, the lands which are planted and have been planted in vineyards specifically for wine and brandy production in the past, are now being cut up into small farms and being devoted by the small owners, probably, in part, to raisin production, as those are varieties which largely could be converted into raisins, and presumably, to other lines of agricultural production.

So much for this purchase and equipment proposition. [Reading:]

If these vineyards are purchased and the improvements made so that they can be maintained and operated as independent field stations, it will be necessary to add to the \$20,000 viticultural proviso in the subappropriation for pomological investigations \$7,500 as a continuing maintenance item.

The CHAIRMAN. How much is to be added to item 102, which now carries \$88,200?

Dr. TAYLOR. Our suggestion as to the most practicable method is to deduct the \$20,000 proviso from item 102 and frame a new paragraph, which would cover that work, with a \$7,500 increase for annual maintenance, and an increase of the amount previously stated, \$87,750, for the purchase and equipment.

The CHAIRMAN. What would be the total?

Dr. TAYLOR. The total would be the sum of those amounts—\$87,750 plus the amount in the present proviso, \$20,000, and plus \$7,500; it would be a total of \$115,250.

The CHAIRMAN. What would the new paragraph carry?

Dr. TAYLOR. That would carry \$115,250, including \$20,000 from the old paragraph.

Mr. JONES. Then the two paragraph together would carry how much?

Dr. TAYLOR. \$115,250 for the grape work, and \$68,000 for the general pomological investigations.

Mr. JONES. That \$68,000 would be the paragraph that now calls for \$88,000?

Dr. TAYLOR. Yes, sir.

The CHAIRMAN. That will involve a net increase, then, in the two items of \$95,250?

Dr. TAYLOR. \$95,250.

Mr. ANDERSON. What is the necessity for maintaining these two stations? Is there a difference in the character of the work, in the character of the country, or what?

Dr. TAYLOR. There is a radical difference in the character of the country. The viticultural territory of California is divided, roughly, into two distinct climates—the Bay region, in which the Oakville vineyard is located, and the great San Joaquin Valley, in which Fresno is located. San Joaquin Valley has a high temperature and is very largely an irrigated section. The Bay region has a comparatively cool temperature and is without irrigation.

Mr. RUBEY. How far is that from San Francisco, and in what direction?

Dr. TAYLOR. The Oakville vineyard is northeast of San Francisco, in Napa County.

Mr. RUBEY. About how far is the Oakville vineyard from San Francisco?

Dr. TAYLOR. I will ask Mr. Husmann to answer that.

Mr. HUSMANN. It is about 40 miles from San Francisco in an air line; 64 miles by rail.

Dr. TAYLOR. And the Fresno district; how far is that?

Mr. HUSMANN. The Fresno district is in the geographic center of the State of California; it is about 200 miles south of San Francisco.

Dr. TAYLOR. The increase in the maintenance item to which I have referred is chiefly necessary to meet the very greatly increased cost of labor and materials, which during the present year shows an increase of nearly 100 per cent over the maintenance cost per acre at the time when these plantings were started.

The work under way at these stations is of fundamental importance to the viticultural industry of the Pacific coast. It includes the determination of the adaptability of resistant stocks to the soil and climatic conditions of the grape-growing regions, and the equally important question of determining the congeniality of the leading commercial fruiting varieties to these resistant stocks. It also includes the determination of the adaptability and value of the fruiting varieties themselves for curing into raisins or "currants," and for utilization as table grapes, either fresh from the vines or after various periods of storage, to supply the consuming demands during the winter season.

There is a definite probability that we shall be able to develop the production of the long-keeping type of grape which we have been importing from Spain, in kegs or cork dust, ever since any of us can remember, as well as develop this production of the dried currants.

Mr. ANDERSON. May I ask a question? You were suggesting, as I understood you, an increase in the acreage at these two stations. Do you propose to abandon the work which you have heretofore done on the wine and brandy grapes?

Dr. TAYLOR. Yes, sir.

Mr. ANDERSON. Why do you need more acreage when you are abandoning part of the project?

Dr. TAYLOR. It will not be an abandonment of the land; it will be a reutilization of the space and, in some cases, a grafting over of the vines.

Mr. ANDERSON. As I understand you, you have been doing work with both wine grapes and raisin grapes, and now you propose to abandon the work with the wine grapes—to which nobody has any objection, I suppose. When you abandon the work on the wine grapes, I can not understand why you need more land?

Dr. TAYLOR. We need more land to undertake certain of these activities on the basis of a commercial-size unit—not of a commercially operated unit, but in commercial-size plats—in which there will be specifically determined the adaptability of the stocks to the soil.

Mr. MCKINLEY. Do you not have to have more space on which to erect the buildings?

Dr. TAYLOR. No; the space required for the buildings would be only about half an acre.

Mr. HUSMANN. I would like to state also that one of the most important problems we have confronting us now is to find some other use for these wine grapes. On this Oakville vineyard, to which the gentleman has just referred, our plans already exist for these various varieties in which the people are interested, and we propose to use those crops which we are producing on that acreage in trying to find other uses for them.

Dr. TAYLOR. All possible ways of accomplishing the solution of these important problems have been considered and, in view of the economic crisis which now confronts the industry, no other practical way is seen of carrying this work through to a successful conclusion. No provision for either the purchase or the financing of the increased maintenance cost is made by the estimates now before Congress.

The features necessary to be considered may be summarized as follows:

Appropriations necessary if vineyards are purchased.

FRESNO VINEYARD.

Purchase of 36 acres of land, at \$600	\$21, 600
Buildings, fences, well, and improvements	14, 650
Farm and laboratory equipment	3, 600
	<u>\$39, 350</u>

OAKVILLE VINEYARD.

Purchase of 30 acres of land, at \$750	22, 500
Buildings, fences, well, and improvements	22, 050
Farm and laboratory equipment	3, 350
	<u>47, 900</u>

Appropriation required for purchase and equipment	<u><u>87, 750</u></u>
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DETAILS OF FRESNO VINEYARD.

Land, 36 acres, at \$600	21, 600
Improvements, buildings and fences:	
Laboratory building	\$3, 500
Barn	2, 500
Cottage for superintendent	4, 500
Fencing, 245 rods (with concrete posts)	1, 000
	<u>11, 500</u>
Water supply:	
Well	1, 000
Pump	150
Reservoir	1, 500
Power	500
	<u>3, 150</u>

Equipment, farm and laboratory:

Tractor.....	\$1, 500	
Plows.....	150	
Harrows.....	100	
Cultivators.....	100	
Hand tools.....	250	
Motor truck (1-ton).....	750	
Scales, lug boxes, drying trays.....	750	
		\$3, 600
Total.....		39, 850

DETAILS OF OAKVILLE VINEYARD.

Land, 30 acres, at \$750.....		22, 500
Improvements, buildings and fences:		
Laboratory building.....	\$3, 500	
Barn.....	2, 500	
Cottage for superintendent.....	4, 500	
Drying house.....	3, 000	
Fencing, 245 rods (with concrete posts).....	1, 000	
		14, 500
Water supply:		
Well.....	5, 000	
Pump.....	250	
Reservoir.....	1, 500	
Power.....	800	
		7, 550
Equipment, farm and laboratory:		
Tractor.....	1, 500	
Plows.....	150	
Harrows.....	100	
Cultivators.....	100	
Hand tools.....	250	
Motor truck (1-ton).....	750	
Scales, lug boxes, drying trays.....	500	
		3, 350
Total.....		47, 900

There is an additional building required at Oakville, in the form of a drying house suitable for the curing of grapes in a climate which does not permit of sun-curing, as the Fresno climate does.

The CHAIRMAN. You have not conducted these experiments without the equipment and the buildings to which you refer?

Dr. TAYLOR. We have had the use, practically without cost, of the equipment which has existed on the large adjacent vineyards, which either have gone or are going out of business; and that will not be available to us, therefore, in the future.

The CHAIRMAN. Does the purchase price of the lands include the buildings?

Dr. TAYLOR. No; there are no buildings on this land.

The CHAIRMAN. On the lands which you propose to buy, there are no buildings?

Dr. TAYLOR. No, sir. We have had the use of the buildings which have existed on the commercial plantations.

Mr. CORBETT. These were really the headquarters buildings of the large plantations, and we have had the benefit of the use of the headquarters and all of the equipment that was maintained to operate the large commercial units.

The CHAIRMAN. You propose to buy the land without buildings?

Dr. TAYLOR. To buy the land without buildings; yes.

The CHAIRMAN. You estimate for equipment, do you not?

Dr. TAYLOR. Yes, sir; this estimate includes that.

The CHAIRMAN. Is it for additional equipment?

Dr. TAYLOR. This is to be provided by the department instead of the commercial equipment formerly available on the plantations.

Those items which I have read for the two vineyards make up the \$87,750 required for purchase and equipment of those vineyards as a going concern, in the shape of department field stations. [Reading:]

"If the above purchases and equipment are made, the maintenance and operation of the vineyard by the department will make necessary an increase in the \$20,000 viticultural proviso of the sub-appropriation for pomological investigations of \$7,500."

Mr. LEE. Who owns these improved tracts, the 20-acre plots that you speak of? Are they privately owned or are they owned by the vineyard people?

Dr. TAYLOR. The one at Fresno is owned by the Fresno Vineyard Co., which was the owner of the entire tract, all of which they have sold except this particular tract occupied by us and the land back of it.

Mr. LEE. Have they gone out of business?

Dr. TAYLOR. They have gone out of business; yes, sir.

Mr. RUBEEY. What percentage of the acreage that has heretofore been devoted to these wine-producing grapes has been disposed of by the owners?

Dr. TAYLOR. I could not tell you.

Mr. RUBEEY. Can anybody present give the committee an idea of how much of that acreage has been disposed of?

Mr. HUSMANN. I think very little has been disposed of up to the present time, due to the unusual conditions which have prevailed and the unusually high prices for everything in the fruit line, including grapes, that have existed this year. The wine-grape growers have gone to work the same as in previous seasons and have pruned and plowed and gotten their vineyards in shape and simply expected Providence to take care of them. They always do expect Providence to take care of them; that is characteristic of that industry; they have not been in the habit of looking for a market for those grapes until the grapes are ripe and ready to come off the vines. The same thing occurred this year, in spite of the serious conditions that confronted them, and things simply took a turn afterwards that caused a demand for all those grapes at very high prices. I think a good many of the questions asked by the members of the committee might be made clear. Mr. Chairman, if Dr. Taylor would make a statement to the committee relative to our relations with the parties owning the lands on which our vineyards have been located. These experiment vineyards, in other words, have been located on property belonging to private parties. They are under a contract agreement under which the Secretary of Agriculture has the privilege of the use of these lands for a period of years, and an agreement has been entered into with the owners whereby they have done the work under the direction of the department, the department reimbursing them at the end of the fiscal year for expenditures incurred.

I think that answers your questions, gentlemen, in so far as they relate to equipment, buildings, etc. We have, in other words, simply had a piece of land set aside at each one of these places, the places belonging to these various owners, and there is absolutely nothing in the way of buildings or anything else on those lands. They were simply farm lands as they were turned over to us.

Mr. WILSON. Has the Agriculture Department purchased any of these lands?

Mr. HUSMANN. No.

Mr. WILSON. What is the object of purchasing them now? Why do not the people who are interested in this new development lease this land to the Department of Agriculture for a nominal sum and get the benefit of the experiment station there? That seems to me to be the proper thing for those people to do.

Dr. TAYLOR. The problem there, Mr. Wilson, at the present juncture, is the maintenance of the investigational work in the future, now that the owners of the lands are going out of business and are subdividing and selling their property for other uses. This leaves the department without buildings or equipment, and those must be provided.

Mr. RUBEY. The statement has been made repeatedly that those owners have sold their land and are going out of business. If a considerable percentage of those men have sold their lands and have gone out of business, leaving only a small number that are continuing in business, then why is it necessary for the Government to take up this particular phase of the work? That is what I want to get at.

Dr. TAYLOR. I think that situation is simply in this shape, that the people who are going out of business are all large concerns who have been doing business in large units, owning their own wineries and doing their own distribution of products through the East; and that the people who have not sold, because they have not had purchasers, are the very large number of small owners, who are just as heavily involved, relatively, as the large ones, but who are left stranded.

Mr. HUSMANN. I would say, further, in answer to that argument, that very few people are going out of the vineyard business, whether it is wine grapes or table grapes. These large concerns have sold out to people who are now subdividing this property and selling it in small tracts to persons who will still continue in the business. The Fresno property, however, happens to be an exception to that; that has changed hands; and the party who has purchased it is parcelling it out in 20 and 16 acre blocks.

Mr. JONES. How many propositions have been made to sell the property to the Government for any purpose that the Government wants it for?

Dr. TAYLOR. I could not say; none have come to my knowledge.

Mr. TINCHER. There are three kinds of grapes produced in California. The Government has destroyed the market for the wine grape; that is the theory, is it not?

Dr. TAYLOR. Roughly; yes, sir.

Mr. TINCHER. The lands on which these grapes grow is worth \$600 an acre at the present time, is it?

Dr. TAYLOR. No; not generally; not the typical vineyard land; these particular sites are.

Mr. TINCHER. The lands that you propose to buy for the Government will cost \$600 an acre?

Dr. TAYLOR. Yes, sir.

Mr. TINCHER. There has not been any depreciation of the land on which the wine grape is grown in California, has there?

Dr. TAYLOR. Speaking in broad general terms?

Mr. TINCHER. Yes.

Dr. TAYLOR. I do not know.

Mr. TINCHER. The lands on which they grow the wine grape will grow the table grape, or they will grow the raisin grape; is not that true?

Dr. TAYLOR. The climate is the determining factor in the raisin-grape question.

Mr. TINCHER. I am talking about the soil?

Dr. TAYLOR. We do not know as to that.

Mr. HUSMANN. I would like to answer that question a little further, if I may be pardoned for interrupting so often. When you come to the consideration of wine-grape vineyard, you find that a large portion of those lands are absolutely unfit for horticultural purpose.

Mr. TINCHER. Except for the growing of the wine grape?

Mr. HUSMANN. Yes, sir.

Mr. TINCHER. I understood you to say a little while ago that those large plantations have been cut up into small vineyards and sold?

Mr. HUSMANN. Not into small vineyards. That particular property is being parceled off into small holdings. The parties who are buying those holdings are going into all kinds of business; what it may be, I do not know.

Mr. TINCHER. What do they pay an acre for that land?

Mr. HUSMANN. I consider \$600 an acre in the neighborhood of our vineyard exceedingly reasonable.

Mr. TINCHER. Is there a market for that land at \$600 an acre; are individuals coming in and buying it?

Mr. HUSMANN. Yes.

Mr. TINCHER. Do you think the Government ought to appropriate money for assistance to those people by reason of the fact that the adoption of the eighteenth amendment to the Constitution deprived them of a market for their wine grapes, when the men who want to go in there and buy those lands have to pay \$600 an acre for them? Ought we to make this appropriation for that purpose?

Mr. HUSMANN. I do not quite understand your question.

Mr. TINCHER. I understand that you ask for an additional appropriation of about \$100,000 by reason of the adoption of the Eighteenth Amendment to the Constitution having injured the property and business of the California wine-grape growers. I understand that the men affected by that amendment are the men who own the wine-grape vineyards and that they are cutting them up and selling them in small tracts at prices of about \$600 an acre!

Mr. HUSMANN. No; the wine-grape growers are not cutting them up into small holdings; and, with the exception of this particular property on which the department's experiment vineyard is located, the people who are buying the lands, as near as I can ascertain (and I am quite sure that I have the correct information in regard to the

great majority of the holdings) are going right ahead in the grape business.

Mr. TINCHER. Those people are growing what kind of grapes?

Mr. HUSMANN. They are mostly table and raisin grapes.

Mr. TINCHER. I understand that you are asking for more than \$100,000 now by reason of the effects of the Eighteenth Amendment on the wine-grape industry?

Mr. HUSMANN. Yes, sir.

Mr. TINCHER. What I would like to get at, before I would be willing to vote for spending the Government's money for such a purpose, is just what is the reason for spending the money? I realize, for example, that the distillers in Kentucky and other places will have to make other uses of their property from those which they made before the adoption of that amendment.

Mr. CORBETT. May I answer that question?

Mr. HUSMANN. Yes.

Mr. CORBETT. The situation, as it occurs to me, is this: What we are asking for, or what is proposed in this proposition, is an appropriation to preserve the valuable collections of vines which the Government has brought together on these two particular tracts, and it has nothing to do with the general economic condition which you are discussing. What is proposed in this is to make it possible to continue the work for the benefit of the general industry of California, which is based, as Dr. Taylor has told you, upon the European varieties—for the benefit of the general grape industry there rather than to attempt to reimburse anybody for losses growing out of the constitutional amendment.

Mr. TINCHER. Let us be specific now. I do not know what you scientists have in mind. What do you intend to do? Do you intend to keep on growing the wine grape? Is that what you mean—to preserve the wine grape?

Mr. HUSMANN. One of the big problems at the present time is to find out if there are other uses for those wine grapes. We do not want to destroy the wine-grape vineyards if we can find a use for those grapes.

Mr. TINCHER. You do not want the Government to appropriate money to encourage the retaining of the wine-grape vineyards—and not to change them to some other kind of vineyards, but to find a use for the wine grape?

Mr. HUSMANN. Of course, there is a large investment in wine-grape vineyards in California.

Mr. TINCHER. I understand that the wine grape is selling for more to-day than it did before the adoption of the constitutional amendment.

Dr. TAYLOR. That is the grape grown down in the Fresno country; that is entirely different.

Mr. TINCHER. That is the wine grape, is it not?

Dr. TAYLOR. That is the sweet wine grape. Up in Mr. Lea's district they grow a very different kind of grape from that grown in the Fresno section.

Mr. TINCHER. That is a sour wine grape, is it?

The CHAIRMAN. Do you desire to be heard, Congressman Lea?

STATEMENT OF HON. CLARENCE F. LEA, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA.

Mr. LEA of California. I think I can make that a little plainer, Mr. Chairman. My district grows the same kind of grape as Mr. Curry's district, in which it is proposed to locate one of the experimental vineyards. Under existing conditions the cost of a vineyard in that section, putting the vines in, etc., is about \$250 an acre.

The great problem now is to take those grapes, which have heretofore been useless except for sour wine, and convert them into some commercial product so that those vineyards that are now useless can be utilized.

As to the price; a good price has been realized generally for grapes this year, and the grapes from our district bring the highest price of any sour grapes in California. The other day I saw a man from our home district, who told me that he had sold his grapes for \$28 a ton; and the grapes have been sold there, I think, at prices ranging from \$20 to \$50 a ton; there has been a great variety in the prices.

Mr. HUSMANN. They have sold as high as \$85 a ton.

Mr. LEA of California. This man that I spoke of, followed those grapes up to New York and found that those same grapes were sold in New York at \$100 a ton. There were 35,000 car loads of grapes shipped out of California, which largely went to prohibition territory and were used by individuals in making wine. Of course that is not a satisfactory market for our grapes. The people of California can not depend on a violation of the law to furnish them a market for the product of their vineyards; and it would be a great thing for our grape-growing industry if it could find some method of utilizing those grapes. We have 170,000 acres of wine-grape vineyards in California that cost us somewhere around \$250 an acre; and it would be a great contribution to the prosperity of the State if those vineyards could be utilized for some legitimate commercial purpose.

Mr. TINCHER. It would hardly be proper, however, for the Government to appropriate money having for its object encouraging the continuance of the production of the sour-wine grape, because we know that the only use of them will probably be illegal use for wine making.

Mr. LEA of California. That is a very pertinent question. The object of this is just the contrary. Not to use those vineyards for the purposes for which they have hitherto been used, to continue to use them for that purpose, is a thing that ought not to be done and can not be done; but the proposition here is to use those vines for a lawful purpose, and if we can find a way to use them in some other way than for wine, they would supply food products for the people of the Nation and for foreign markets.

Mr. TINCHER. I would like to ask how much money the State of California has appropriated for that purpose?

Mr. WILSON. I was about to ask the same question.

Mr. LEA of California. The State of California began appropriating money for the development of the grape industry 40 years ago and has appropriated about a quarter of a million dollars for that purpose.

Mr. ANDERSON. Has the State any experimental vineyard or anything of that sort?

Mr. LEA of California. Nothing, except the Davis Experiment Farm.

Mr. WILSON. Why does not the State take this matter up and work it out? Why do they want the United States Government to do it?

Mr. LEA of California. The agricultural department in California is working on this problem, which is simply one of a number of industries that the agricultural department encourages. The various States of the Union are doing what they can along various lines, but the efforts along this line are entirely analogous to other efforts made by the Federal Government to encourage and develop industry. There is no problem that is presented to this committee where there is a more specific object to be attained or where a more definite accomplishment is highly desirable.

The CHAIRMAN. Thank you very much, Mr. Lea. Dr. Taylor, how many experiment stations are maintained in California by the Federal Government?

Dr. TAYLOR. Only one, the Plant Introduction Garden at Chico. There are in this viticultural work a number of small cooperative vineyards, occupying a few acres in each place, which will now have to be abandoned.

The CHAIRMAN. Will any be abandoned?

Dr. TAYLOR. They will all be abandoned except these two now under construction. If this purchase were authorized, it would leave the department owning the plant introduction garden at Chico and these two viticultural field stations.

The CHAIRMAN. Were they supported out of this item?

Dr. TAYLOR. They were supported jointly by the department and the owners of the land.

The CHAIRMAN. The ones to be abandoned?

Dr. TAYLOR. They were supported out of that, but the support there was a matter of only \$200 or \$300 a year at each place.

Mr. CORBETT. Some of them were only \$50 or \$75 a year.

Mr. ANDERSON. Dr. Taylor, do we understand correctly that the figures that you are giving are in the nature of an estimate; I mean, is the department officially recommending the expenditure?

Dr. TAYLOR. The situation is this, Mr. Anderson: The question came to a head after the estimates were submitted. The California organizations began to put up to the department the question of the continuance and development of this work through their Senators and Representatives. We have made a careful study of the situation, and on the 10th of this month I submitted what is substantially this statement [indicating] to the Secretary, who yesterday, following the reference to the matter in the hearings the day before yesterday, authorized me to present this to the committee.

The CHAIRMAN. As a supplemental estimate?

Dr. TAYLOR. It is not submitted as a supplemental estimate by the Secretary, but is placed before the committee for its information.

Mr. ANDERSON. What I want to know is whether the department is recommending this estimate or not?

Dr. TAYLOR. The Secretary has not formally recommended this expenditure. That would require the submission of a supplemental estimate through the Secretary of the Treasury.

Mr. JONES. Why should not the Government mark that up to profit and loss in the same way that private interests have to do under the operation of this constitutional amendment as to the amounts already invested in that State?

Mr. McKINLEY. The Government has not invested anything out there.

Mr. JONES. They certainly have investments out there that they want to preserve.

Dr. TAYLOR. In so far as the monetary part of it is concerned, that is a minor element in it. If there is anything in this work at all, the value of the work is in the increase of knowledge which can be applied practically in the production of useful products.

Mr. TINCHER. Dr. Taylor, there is one county in my State that has been a great apple-growing county ever since I can remember, the conditions being peculiarly adapted to the growing of apples suitable for making applejack. Do you think that an experimentation should be made in that county to show the people there some other use to which they can put those apples?

Dr. TAYLOR. I do not happen to know the circumstances. I do not know whether they have invested large sums of money and are dependent on the sale of applejack for their bread and butter.

Mr. TINCHER. Some of them have become millionaires by selling applejack or by selling apples to the manufacturers of applejack. Of course, now they will have to find some other use for those apples.

Mr. LEA of California. May I answer that question, Mr. Tinchler? I think the question very well illustrates the gist of this matter that is being presented. The situation in the two cases is entirely different. There are many ways of using the apples to which you have referred without making applejack out of them. In the case of these wine grapes in California, we have there 170,000 acres of those grapes, a large portion of which can not be used for any other purpose, unless some method of using them is found as a result of these experiments.

Last year those vineyards produced \$20,000,000 worth of products. If you can take those wine grapes that can not be used for the manufacture of wine and use them in making some food product that would be worth \$20,000,000, it would be a very good investment for Congress to make this appropriation.

Mr. ANDERSON. Is it a fact that these lands upon which the wine grapes are grown are not useable for producing anything else?

Mr. LEA of California. As to part of them that is true. Part of those are good lands and part of them are of no value for any other purpose. In my home county, for example, one company had 5,000 acres of land which originally was of no value; it was actually waste land; it was so much waste land that it was not assessed. The company spent hundreds of thousands of dollars in preparing that land for vineyards, and recently they sold that property for 20 per cent of what it cost them to improve it, and the vineyard company went out of existence. That land will be taken up eventually by small holders. But a lot of that land is good land. What I want to call to your attention is the fact that the vineyard which was put on the land to which I referred was worth much more than the land itself; and that is frequently the case.

Mr. TINCHER. That goes back to this proposition, that what the California vineyard owner wants is for the Government to fix some way by which he will not have to abandon his land for the growing of sour grapes, such as are grown in your district, but can keep on growing those grapes and find some other use for the grapes?

Mr. LEA of California. No. The idea is to take that vine and, by grafting, develop a type of grape that will be a food-producing grape instead of a wine grape. The purpose is to protect the industry in the same way that you spend money to eradicate the cattle tick, or destroy rust, or anything of that kind.

Mr. ANDERSON. These vineyards can not continue indefinitely. If you are going to do anything, you should do it in the right way. What is the use of putting \$100,000 into a permanent station? It will take them a year to get the buildings erected, if they work in the way they work on these buildings here in Washington; and by the time you get the information desired it will be of practically no value, and you will have spent the money in maintaining your offices and get nothing out of it.

Mr. LEA of California. The situation is not quite as bad as that. For instance, a man in my district can produce his wine grapes and depend on the markets of South America and Japan. In these hill lands that I spoke of the vineyard is worth four times the value of the land on which it is planted. Rather than sacrifice four-fifths of his investment, a man will struggle along for three or four years, hoping that this industry will reach a successful commercial state when he can realize on his investment; but if he destroys his vineyard, he has destroyed four-fifths of his investment.

Mr. WILSON. Have those people sold their vineyards?

Mr. LEA of California. No; the sales do not amount to 1 per cent of the holdings.

Dr. TAYLOR. I would like to say that it is a fact that the sales have been of the larger holdings and that the people who are primarily concerned in this item and who are facing the greatest injury to their business are the smaller producers.

Mr. JONES. The people who have bought this 1 per cent of the land that the gentleman speaks of—what do they propose to do with it? Do they propose to continue the vineyards?

Dr. TAYLOR. In places where they see any chance of being able to convert their vineyards into the production of raisins, I should say they would go right ahead with raisin production.

Mr. JONES. You say about 1 per cent of those lands have been split up into smaller tracts. What are the purposes of the purchasers? Do they propose to keep up the wine vineyards?

Dr. TAYLOR. Those particular vineyards are growing a grape which produces raisins as well as sweet wine and brandy.

Mr. JONES. Then the wine-grape vineyards are not changing hands very rapidly?

Dr. TAYLOR. The big ones are breaking up; the small ones are not salable.

Mr. MCKINLEY. Is not the reason for the proposition that is being presented that one-half the wine-grape industry is in the hands of small holders, on lands that they can not use for other purposes, and they feel that the United States Government, having put them out

of business, ought to assist them, at least, to develop their grapes into some kind of grapes that can be used for raisins or something of that kind?

Mr. LEA of California. That is the real problem. I live among those vineyards; there are 16,000 acres of those vineyards in my county. A large percentage of them is on land that is of little value for any other purpose. The people who have the vineyards on the best of those lands do not excite my sympathy so much, because they can convert their lands into the production of other products in a few years; into a prune orchard, for example, or something like that: they have solved their problem. But the poor fellow who went up into the mountains and worked there 20 years and dug up the rock and put the labor of his life into those vineyards, in which four-fifths of the value of the vineyards is in the vines—the small farmer who, just as you suggest, conducts the greater portion of the whole industry, is the man who deserves the most consideration.

The CHAIRMAN. Your suggestion is to find a substitute for the wine grape that he has been growing?

Mr. LEA of California. Yes, sir; and not to use it for wine.

Mr. ANDERSON. In order to accomplish that result do you think it necessary to put this on a permanent basis by the purchase of land and the erection of concrete buildings on the land?

Mr. HUSMANN. I would like to answer that question, if I may. The department's viticultural work on this particular plot, in which Mr. Lea's district is particularly interested, has been going on since 1903. We have made all these plantings and have done all of that work; and right now, at the crucial time, when we should get busy and show those people what to do with those grapes, the property is to be taken away from us. The experiment vineyard, as stated before, is on leased property.

Mr. ANDERSON. Has that lease expired?

Mr. HUSMANN. Not on that particular plot, but it will expire in three years. In the case of the Fresno land, that has changed ownership and we are unable to renew our lease. So that we are really squarely up against it with the Fresno plot and will be up against it with the Oakville proposition. We do not feel, from a department standpoint, that we should squander the Government money in conducting investigations on lands on which we know we can not conduct them long enough to get any results.

Mr. ANDERSON. That is exactly what you have done. You have put money into the establishment of the vineyard, where, you say, you are now confronted with the probability, or practical certainty, of losing the land. That is exactly what you have done, and that is what I am complaining about. After you have started a practically impossible proposition, you come here and insist on our taking it off your hands with an additional appropriation.

Mr. LEA of California. They probably did not look forward to the adoption of the constitutional amendment.

Mr. HUSMANN. Exactly; that is the fact; and this work is of a progressive nature. When this work was started in California, there were two problems confronting California. They had the California vine disease, which was not destroying the vineyards as slowly as the phylloxera has done but was wiping them out by thousands of acres.

Nobody knew what to do to prevent that. The phylloxera was doing the same thing. In one season alone at least 75,000 acres of vineyards were cut off, due to those agencies. When the department first got busy out there we had to do the best we could under the circumstances. We had to do something to help out the industry, and the only way we could do it was to locate this work at those places.

The CHAIRMAN. Thank you, Mr. Husmann. Are you through, Dr. Taylor?

STATEMENT OF DR. WILLIAM A. TAYLOR, CHIEF OF THE BUREAU OF PLANT INDUSTRY, DEPARTMENT OF AGRICULTURE—Continued.

Dr. TAYLOR. I would like to read a suggestion for a provision to cover this item. But, first, I would like to say that Mr. Anderson has stated the case exactly, and we accept full responsibility for not foreseeing in 1903 the eighteenth amendment to the Constitution.

Mr. JONES. Why not mark it off and charge it to profit and loss?

Dr. TAYLOR. In so far as our expenditures are concerned, that would be a mere matter of bookkeeping.

The CHAIRMAN. What would be the loss to the Government?

Dr. TAYLOR. We could determine how much we have spent in the whole work during the period.

The CHAIRMAN. What it is worth would be the loss?

Dr. TAYLOR. So far as the monetary value, the selling value of the vines that are there, is concerned, they have no selling value; they can not be transplanted.

The CHAIRMAN. What would be the loss?

Dr. TAYLOR. The loss to the Government would be the interruption of the work.

The CHAIRMAN. The interruption of the work?

Dr. TAYLOR. And the prevention in large part of the beneficial results likely to accrue from it.

Mr. McLAUGHLIN of Michigan. The land is covered and filled with vines in all stages of development, is it?

Dr. TAYLOR. Yes, sir.

Mr. McLAUGHLIN of Michigan. You have all the different grades and varieties which you have developed?

Dr. TAYLOR. We have the largest and most complete collection of vinifera grapes in the world.

Mr. McLAUGHLIN of Michigan. And if you do not continue the work you will lose all those plants and the advantages of all those experiments, as far as you have carried them?

Dr. TAYLOR. Not all of them, because many of the results that have been attained have already gone into the California horticultural industry as they have become evident, but a very large part of the potential value of the work would be sacrificed.

The CHAIRMAN. What do you estimate to be the value of the holdings of the Federal Government?

Dr. TAYLOR. We have no holdings there, Mr. Chairman.

The CHAIRMAN. You have the plantings?

Dr. TAYLOR. They would have no selling value, any more than laboratory material in Washington would.

The CHAIRMAN. What would it cost to replace them?

Dr. TAYLOR. To replace them, to bring those plantings up to their present stage, at the present cost of doing that sort of thing, would amount, I would say, to at least three or four hundred thousand dollars; but they would not have that selling value, because they are not commercial material. My suggestion to the committee is that a practical way of handling the matter would be to merge the existing proviso in the present subappropriation, "For the investigation and improvement of fruits," etc., in a new paragraph providing substantially as follows:

For investigating and developing grape production, including the development of new grape industries and methods of utilizing grapes heretofore used for the production of alcoholic beverages, \$115,250: *Provided*, That of this amount the Secretary of Agriculture is authorized to expend \$87,750, or so much thereof as may be necessary, for the purchase, improvement, and equipment of lands occupied by the department's experiment vineyards near Fresno and Oakville, Calif., now maintained under contracts with the owners: *Provided further*, That the land purchased for the Fresno vineyard shall not exceed 36 acres, at a cost not to exceed \$21,600, and for the Oakville vineyard not to exceed 30 acres, at a cost not to exceed \$22,500: *And provided further*, That the limitations in this act as to the cost of farm buildings shall not apply to this paragraph.

Of the total of \$115,250 carried by this new paragraph, \$87,750 would be required for the purchase of the two vineyard sites, totaling \$44,100, and their improvement and equipment at a cost of \$43,650. Of the remaining \$27,500, \$20,000 represents the present appropriation for viticultural work, and \$7,500 the increased expenditure necessary to carry on the work under present-day conditions. As several of the buildings needed would, under existing conditions, cost more than \$1,500 each, it would be necessary to have an exception made in the limitations of the act as to the cost of farm buildings. This is provided for in the last proviso of the proposed paragraph.

Should the above provision be adopted and incorporated in the bill, the now existing \$20,000 proviso in the subappropriation "For the investigation and improvement of fruits," etc., should be eliminated and the amount carried by that paragraph be reduced from \$88,200 to \$68,200.

The CHAIRMAN. Thank you, Dr. Taylor.

STATEMENT OF HON. HUGH STEEL HERSMAN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA.

The CHAIRMAN. We will next hear Representative Hersman, of California.

Mr. HERSMAN. Mr. Chairman, I only want to say a few words by way of supplementing the statements that have already been made relative to the purchase of these vineyards, and to answer a few questions.

One of the last questions asked by Mr. Anderson was what loss would be entailed if we gave this work up. At present, there are no buildings on this property. It has only been under the control of the department, and the Federal Government has put nothing

on it but vines. Our monetary loss would be very little if we gave them up.

But can we afford to give them up? That is the question which this committee is confronted with. What have those vineyards, that have no buildings on them, but only vines—what have they meant to the State of California and to the Nation?

The very fact that the Department of Agriculture has conducted experiments on these two little plots in California has possibly saved to the State of California their whole grape industry, both raisin grapes and wine grapes, by finding something that could combat the phylloxera that was destroying the vineyards. I have seen thousands of acres cut down in a few years. The experiments conducted by the State of California and the Federal Government have shown the method to be used and have saved \$40,000,000 worth of property.

Mr. ANDERSON. Will you allow me to ask you a question? My whole objection to this proposition is involved in the Government buying this land and erecting these buildings; that is, establishing a permanent station which the Government itself will have to maintain for all time to come.

If the State of California, or somebody else, wants to buy this land I am perfectly willing that the Government shall furnish all the expert assistance, all the scientists, and everything else that is necessary to cooperate with the State to do this work; but I am not willing for the Federal Government to go out and establish two new stations—to buy the lands and maintain them perpetually.

Mr. HERSMAN. Let me answer your question under these two heads: First, can we afford to lose the benefit of 13 years of experimental work; and, second, who should pay for these vineyards? The United States Government has spent 13 years in experimenting on these two tracts and, as a result, if these vineyards are not secured, this most valuable work will be lost. Either the Federal Government or the State of California should see that these vineyards are purchased while it is possible to do so.

Mr. WILSON. Why not let the State of California purchase this plant, as Mr. Anderson suggests, and then let us furnish the expert assistance?

Mr. HERSMAN. I am going to answer the two following questions: First, can we afford to lose them; and, second, should the Federal Government purchase them? For 13 years the Federal Government has had direct charge of these two tracts. The Fresno tract is near the city of Fresno, one of the richest sections in California. This land was owned originally by the California Wine Association, which owned 600 acres in one large vineyard, and in this same section a short distance away owned 3,000 acres in another vineyard. They gave the United States a long lease upon this land in order that experiments should be carried on, not only for their own benefit, but for the benefit of every grape grower in the Nation.

Now, under the Eighteenth Amendment to the Constitution, the California Wine Association finds itself in a position where it is forced to dispose of all its holdings and is proceeding to do so. Just who will get these particular tracts or what disposition will be made of them is hard to say. The time to purchase is now, while it can be

done, in order to save the valuable work that has been carried on by the Federal Government.

There are at present 210,000 acres of raisin and also 180,000 acres of wine grapes in the State of California, besides large areas of grapes in other States. Unless some method is found to utilize the wine grapes of the Nation by converting them into sirups or beverages or by drying them, all these 180,000 acres will be an economic loss to the Nation. Only through scientific experimentation can this be hoped to be done, and it must be done at once; otherwise the vineyardists will not be able to continue the cultivation of their vineyards under the uncertain conditions.

The Legislature of the State of California does not meet for two years. It will take 60 days after its adjournment before any law would go into effect. It would take at least until the spring of 1922 before any relief could possibly be expected from the State of California, and as this work must be done at once, the Federal Government having already undertaken and carried it on for 13 years, it would seem to me incumbent upon us to continue this work that means so much not only to the State of California but to other States and the Nation, and to save this great loss that will surely come about unless a method is quickly discovered by which this large acreage of wine grapes can be converted to some other economic use.

Last year under war-time prohibition it was possible to ship the fresh grapes East and have them made up by individuals into wine; under national prohibition, this can not be done. The owners of these vineyards are confronted with absolute loss unless some relief is immediately undertaken.

The second question, who should purchase these vineyards, I have partly answered. Four years ago no one could have looked forward to the speed with which prohibition has swept this Nation. At least, no one expected that the wine industry of the Nation would be so completely wiped out in such a short time. Up to the present time the Federal Government has lent every encouragement to increasing the acreage of wine grapes. All the State governments have encouraged their people in planting and securing the right varieties, have kept experts in the field, and by every means have lent their aid an encouragement to the planting and increasing the acreage of wine grapes in the Nation. This has resulted in California having 180,000 acres in wine grapes. The men who own these vineyards are in large part small, individual owners whose only means of livelihood is derived from the cultivation of their vineyards, and with national prohibition they are threatened with bankruptcy with no means except the labor of their hands to educate and provide for their families.

So it seems to me that there is a moral obligation resting upon the whole people to see whether some method can not be devised to utilize these grapes so that the innocent people should not suffer from a decision that the Nation felt must be brought about. One hundred thousand dollars is very little to appropriate with the idea in view of saving many millions of dollars' worth of property, and it seems to me that there is a moral obligation resting upon the people of this Nation to do everything they possibly can to save this property which, through no fault of the owners, is now being taken away from them. As I have intimated, it is impossible to secure

this relief from the Legislature of the State of California. There is no other agency to which we can appeal but the Federal Government, and I have every belief that they will do justice to the unfortunate vineyardists of this Nation.

Mr. JONES. Would you go to the extent of reimbursing everyone who has suffered loss by reason of the adoption of the eighteenth amendment?

Mr. HERSMAN. No; I am not advocating that.

Mr. JONES. Where would you draw the line between the California wine growers and anyone else who has suffered by the adoption of that amendment?

Mr. HERSMAN. I would not draw the line. If anything can be done, as Mr. Tincher suggests, to save the apples grown in his district that have been used for the manufacture of apple jack—if they can be saved by a small appropriation—I say I believe it should be undertaken. The moral obligation rests upon us all to pay a little more taxes, to try to find a way by which this property can be saved. Not only that, but I believe it is a splendid investment for the Nation to appropriate a small amount of money in order to save a vast sum to the resources of the Nation. Ordinary business judgment would prompt a business man to appropriate a small sum in order that a large sum may be secure. Those who advocated national prohibition should have been willing to say, "I not only believe in it, but I am willing to put my hand in my pocket and help to pay for something that I believe will not only do me good but will do the Nation good." This compensation was not provided for under the eighteenth amendment, but there is a way by which a little money can now be advanced which possibly may result in saving a large part of this investment which otherwise would be lost to the Nation.

Mr. RAINEY. The people of California are very seriously interested in this matter. What objection is there to the State taking over this land and having the Government appropriate sufficient money to develop it?

Mr. HERSMAN. There is a very serious objection. I say I believe it is the duty of the Federal Government to do it. At this time it is the only agency that can do it. I believe it is the duty of the Federal Government under the circumstances to appropriate at least the \$100,000 requested, and I thoroughly believe that we can not afford to lose this experimental work that has been going on for 13 years. It is of great value to the future development of the grape interests of the Nation.

The CHAIRMAN. Thank you, Mr. Hersman.

Mr. WILSON. I would like to know what the State of California has done along this line. Nothing has been said about that.

Mr. JONES. And what it proposes to do.

The CHAIRMAN. We will now hear Mr. Barbour.

STATEMENT OF HON. HENRY ELLSWORTH BARBOUR, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA.

Mr. BARBOUR. I would like to reply to that question and to Mr. Anderson's question a few minutes ago.

The State of California has spent a great deal of money in the interest of the grape industry. They carry on the work at various stations. I do not know whether you would call them experiment

stations or not, but that is what they are in fact. They have one large vineyard just outside of Fresno which was willed to them by a wealthy citizen of the State, who died and left the property to the University of the State of California for experimental purposes and for the purpose of developing and bringing to a high state of perfection the vineyard industry.

The principal lines of activity that the State has been engaged in have been in connection with the management and operation of vineyards; for instance, correct cultural methods, the proper way to prune the vines, and so on. The State is very active along those lines. At the present time it is the policy, and in recent years has been, for representatives of the State of California to go down through the vineyard districts and hold demonstrations in the various sections. The farmers from the neighborhood gather together on certain days, and the experts from the State agricultural department are there to show them how to prune their vines and so forth. At the head of that activity is Prof. Biolotti, who is considered the foremost expert in the world on this question of pruning of vines.

Then the State's representatives instruct the grape growers in the manner of cultivating their vineyards, sulphuring their vines to protect them against mildew, red spiders, and so forth. All those activities are carried on by the State of California. The State is not idle, and is not penurious in doing what it can to help this industry along.

Mr. ANDERSON. I have always thought that the State of California was very liberal in internal matters of every sort.

Mr. BARBOUR. I believe it is.

Mr. ANDERSON. I have always thought that, and I could not just see why you were asking now that the Federal Government undertake this proposition as a permanent, continuous proposition, involving the ownership of the land, the construction of the buildings and everything else.

Mr. BARBOUR. For 15 or 16 years the Federal Government has carried on this work, and, as Dr. Taylor has said, they have the finest experimental station of this kind existing anywhere in the world. The work is carried on under the supervision of the experts of the Department of Agriculture, who are better qualified than anyone else. It seems to me that, if your position is a logical one, we could simply say, "Let the eradication of the cattle tick be left to the State of Texas or the State of Mississippi; let the cotton-boll weevil be left to the Southern States," and we could go right down the list and wipe out all these activities of the Department of Agriculture that are carried on in the interest of the farmers of the country. The same process of reasoning that would apply in one case would apply in the other.

Mr. ANDERSON. I do not think those cases are analogous at all. I think that might lead to the conclusion that the experiment stations in the various States should be owned by the States in every instance, and I am not so sure that that is not the proper policy.

Mr. BARBOUR. I would not contradict you on that proposition; it might be a good policy.

Mr. YOUNG. As I understand it, one of these leases has expired or is about to expire?

Mr. BARBOUR. The lease will expire in three years, I believe, as to the station in Napa County, and the other one, at Fresno, has already expired or is about to expire by reason of the sale of the property.

Mr. YOUNG. That is what I am getting at; the Government has all of those vines, etc., on those two leased properties?

Mr. BARBOUR. Yes, sir.

Mr. YOUNG. So that in the case where the lease has already expired, or is about to expire, if this sale of the property is made, the Government will lose all that it has done on these experimental farms?

Mr. BARBOUR. Absolutely.

Mr. YOUNG. And the lease on the other property will be in the same position in three or four years?

Mr. BARBOUR. Yes, sir.

Mr. YOUNG. So that, as far as the Government itself is concerned, it is vitally interested in this proposition, in view of the fact that it has the result of 14 years' work on these plots?

Mr. BARBOUR. Yes, sir.

Mr. YOUNG. And to some extent it is a matter for us to consider what the Government is going to do to protect the vital interest which it now has on these plots of land?

Mr. BARBOUR. Yes, sir.

Mr. YOUNG. And somebody should carry on that work, whether it be the Federal Government or the State of California?

Mr. BARBOUR. Somebody should do it. The Federal Government has been carrying on that work, and naturally the people of California are looking to the Federal Government, which already owns what is there in the way of improvements and the vines that exist, to continue to carry it on.

The question has been asked as to what those vines would be worth in dollars and cents if they were pulled out and sold. They would be worth nothing. But when it comes to their value as a matter of education that they afford to the people engaged in the vineyard industry, you can not measure their value in dollars and cents.

Mr. JONES. When the Government started to make these plantings and these vineyards it was on leased land, was it not?

Mr. BARBOUR. Yes, sir.

Mr. JONES. They knew or thought at the expiration of the lease that they were going to lose all the improvements that they had made on the land, or did they start to make the improvements upon the theory that ultimately they would buy the lands?

Mr. BARBOUR. I do not think they had any theory of that kind.

Mr. JONES. When a man makes improvements on leased land, he knows that at the expiration of his lease he is going to lose his improvement, does he not?

Mr. BARBOUR. I do not think that was done in this case, for the reason that the vineyards were on property owned by the California Wine Association, which was engaged in producing wine grapes and manufacturing them into wine on a very large scale—probably on as large a scale as anybody. That was the business in which they were engaged. This was part of the property upon which they were producing the grapes to manufacture into wine. Nobody foresaw that prohibition was coming along and that the California Wine Association would have to go out of business.

Mr. ANDERSON. Somebody must have foreseen it, because the lease itself contained a provision that the lease was void in that event.

Mr. BARBOUR. I understand that was the arrangement.

Mr. ANDERSON. The people who own the land must have had some expectation of that.

Mr. BARBOUR. But the company has provided in its contract for the sale of this property for the right to reserve the 36 acres of land for sale to the Government at a price of \$600 an acre; fortunately, they have reserved it at the price of \$600 an acre.

Mr. JONES. What I am getting at is this: If the Federal Government made a lease for 13 years, is it not to be presumed that that was the life of the experiments they proposed to make? If I lease property for 5 years, or 10 years, or any other term, I try to fix the term according to the use I intend to make of the property. The Government leased the land for 13 years, or whatever the period was; and was it not the thought of the Government that that would be the time that they intended to carry on the experiments?

Mr. BARBOUR. I do not think it follows that the term of a lease determines the period of activity of the lessee. In the case of a merchant, it does not indicate that he intends to go out of business in five years if he makes a lease of property for five years. The Government went into this thing on a small scale, and it has grown and grown and has become a much bigger thing than anybody foresaw.

Mr. WILSON. Mr. Chairman, I think we have gone into this matter about as far as we can to-day, have we not? There are several other Members of Congress to be heard.

Mr. RUBEX. Mr. Chairman, Representative Osborne, of California, desires to be heard on this proposition.

Mr. BARBOUR. I want to add, in reply to Mr. Jones's statement, that the Government has paid nothing for these lands.

The CHAIRMAN. Thank you Mr. Barbour. The committee will now hear Mr. Osborne.

STATEMENT OF HON. HENRY Z. OSBORNE, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA.

Mr. OSBORNE. Mr. Chairman and gentlemen of the committee, this is a great committee, having to do with a great department of the Government. It is a department of the Government in which the agricultural and growing interests of the country are deeply interested. You do a great work; you have done a great work in lines that are analogous to this in which we are now seeking to interest you.

This industry in California, figuring on the value of the land involved, represents somewhere in the neighborhood of \$50,000,000, without including anything for the value of wineries and other accessories of this industry. We in Congress have done something that affects this industry in a very serious way; it does not entirely eradicate it, but very largely so.

While you are looking around for things to do that will be of value to the farming community, why is it not well to look at those things where you can avoid evil; where you can avoid the evil consequences of what has been done in a conscientious way? Mr. Chairman, I have always felt reluctance, and I presume every Member

here has, to voting even on what appeared to be a great principle, where it would have the effect of ruining or greatly injuring large bodies of our people. I have felt as if in some way we ought to make reparation.

I will go back further than the present; I will go back to the Civil War, and say that in my heart I believe we as a country may have done a great injustice to the South when we freed the Negroes in the South and abolished that enormous property interest without giving any compensation for it. Its only justification is that it was done as a war measure—as an act of belligerency. That we did so then—that we did that which was at least questionable—is not a good reason for doing another act which is questionable.

My point is this: The people of California have produced, I think, something like 90 per cent of the wine of the country; so that it is not a fair comparison when you compare that industry with the industry that produces applejack in a county in Kansas. In this case you are dealing with millions of dollars, and in the other you are dealing with hundreds or thousands.

Now, gentlemen, a great deal of good is done in these agricultural experiments in one way or another. I have in mind a wonderful example that occurred in California many years ago. At one time, about 35 or 40 years ago, I remember that the orange orchards of the southern part of California were attacked by what is known as cotton cushiony scale. They sent a man all the way to Australia to find a remedy for that scale. It looked as though the whole industry was going to pieces. The orange orchards were as white as snow with this cotton cushiony scale that had fastened itself on the leaves and bark of the trees. The insect would lay about a million eggs; those eggs would hatch out, and then those insects would lay millions more of eggs, so that in a short time the orchards were completely covered by the scale, and eventually they must have died. So they sent out to Australia—either the United States Government or the State of California; I think they did it jointly. They brought back a parasite which attacked this cotton cushiony scale and destroyed it, and it absolutely saved the citrus-fruit industry in California and made it what it is to-day. At that time we were shipping out about 1,500 carloads of oranges annually. This last year we have shipped out 50,000 carloads of oranges. That salvation of the citrus-fruit industry was all due to the wiping out of that cotton cushiony scale and other insect pests.

I regard this present question from the broad standpoint of doing what we can to ameliorate what is admittedly a hard situation. In the southern part of California we are not quite in such a bad situation as they are in the north, because our grapes are sweet grapes and can be utilized to a greater extent than theirs. In the northern part of the State the grapes are worthless unless they can find some new way of using them.

I sincerely hope that the committee will do what my friends in the northern part of the State have asked, which seems to be a reasonable thing, and which will probably, in some degree, mitigate the terrible losses with which they are threatened.

You understand that the largest portion of these lands are owned by poor people, in small tracts. There are a few very large tracts;

but the great bulk of the vineyards are owned by poor people, who have been encouraged equally by the State of California and the National Government, through this very Agricultural Department, to carry on that industry. You have done very valuable and interesting work on the subject of horticulture, and you have encouraged the industry; and now it seems to me that there is a sort of a moral obligation that you should do what you can to remedy the evil, which you did not intend as an evil, but which has proved so to those people.

The CHAIRMAN. There seems to be no question as to the importance of this proposition. You will recall, however, that a number of years ago the Federal Government committed itself to a certain policy with respect to experiment stations, which was to contribute to the support of one experiment station in each State. If we now decide upon adding two more California would have four while the other States of the Union, with a few exceptions, have only one.

The question seems to be whether we are justified in establishing four experiment stations in California, when we have only one each in most of the other States. Could the matter be disposed of by the Federal Government making a liberal appropriation to carry on experiments for this particular work without committing it to a number of stations which are to be made permanent and which will have to be appropriated for annually? I wish you would give the question thought.

Mr. OSBORNE. I could not pass judgment upon that for the committee. I am not prepared to do that; but I will say that the stations that are proposed to be continued are in the very heart of the national grape industry and that the benefit of the experiments would not be confined to the State of California.

The CHAIRMAN. That is true of every station, of course. We are grateful to you for your statement, Mr. Osborne.

We will hear Judge Raker next.

STATEMENT OF HON. JOHN E. RAKER, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA.

THE AMERICAN NUT-PRODUCING INDUSTRY AND WHAT IT NEEDS FROM CONGRESS.

Mr. RAKER. The United States last year produced approximately twenty-seven million dollars' worth of Persian (English) walnuts, pecans, and almonds, its three most important nut species. There were also produced probably some two or three million dollars' worth of minor nuts, such as black walnut, hickories of the various kinds, butternuts, filberts, and chestnuts, making a total of close to thirty million dollars' worth of nuts. It annually imports twelve or thirteen million dollars' worth of foreign nuts. Therefore the total consumption in this country is probably between forty and forty-five million dollars' worth.

Production and consumption of nuts are being greatly stimulated in this country by virtue of the decreased grazing areas on which to produce beef and the necessity on the part of greatly increased population to find other sources of protein, fat, and carbohydrates. Farmers are finding the production of nuts one of the most profitable

uses to which suitable soils can be put. Many are becoming wealthy out of this industry, while others are losing money for lack of intelligent information as to proper section in which to plant, proper kinds, reliable sources from which to obtain planting stock, knowledge as to cultural needs, or, finally, a ready market.

The Federal Department of Agriculture has done much toward obtaining and disseminating the needed information of this character. Several of the States have likewise made important contributions along the same line, particularly California, in aiding both the walnut and almond industries. There is still much to be done. In fact, the greater and more important these various industries become, the more they need the assistance of the best possible expert investigation that can be had. There are successive stages of development through which these industries, in common with all horticultural industries, must pass to become substantially successful on a large scale. At present the Persian walnut industry is ahead of all others in development and organization. The almond industry ranks second and that of the pecan third. Production of black walnuts, hickories, and others of the northeastern quarter of the United States is strictly in the experimental stage as an industry.

Beginning with the new industries and continuing through to those most highly developed, some of these successive stages are as follows:

1. The merits of the species must first be determined. It must prove to have a product worthy of time and money by intelligent farmers.

2. The most perfect types or varieties must be selected and made available. Many thousands of farmers are to-day producing varieties of nuts of second or third-class merit. Such varieties are equally as expensive or difficult to grow as are others producing a product worth several dollars more per tree. Every dollar's worth of a food product that a tree produces less than it might produce is a dollar added to the cost of production and therefore to the high cost of living.

3. The question as to where the species will succeed must be determined. Next it must be shown which varieties will succeed best in the various parts of a general geographic territory. For example, the Persian walnut has been found at the expense of the growers themselves to be quite unsuited to growth in the Southern States and hardly capable of adaptation in any State east of the Rocky Mountains. It is not profitable on the Pacific coast except in certain localities. Within these localities there are such differences of local conditions that varieties which are highly successful in one place will not necessarily succeed in another. Southern California, where approximately 97 per cent of the total American crop is produced, confines itself to a South American type, whereas in the Northwest types from western Europe succeed best. With the almond, the situation is much the same, except that it is even more exacting in its requirements. It does not succeed east of the Rocky Mountains and is highly exacting as to conditions on the coast. It blooms with the first approach of spring over a period extending from late January in some years till early March in others. It must be grown, so far as possible, in localities in which there is a minimum of danger from

killing temperatures after the buds begin to swell. Very few of its varieties are capable of pollinating their own pistillate flowers. They must be intelligently interplanted to insure interpollination from the staminate flowers of other varieties blossoming at the same time. The pecan covers a tremendous area—practically the southern half of the country east of the Rocky Mountains. It is either indigenous or has been planted in every State between New Jersey and Texas and from Iowa to Florida. Yet Florida varieties will not succeed in New Jersey or Iowa, or vice versa. Texas varieties do not succeed in Florida, but Florida varieties do succeed in Texas.

4. How to cultivate and care for nut trees is the next problem. Very often, two farmers on adjoining land, having similar types of soil, the same varieties, trees from the same nursery, planted the same year and on the same day of the month may have entirely different results. One may succeed and the other fail. One may have planted his trees too close together or he may have plowed too close and so broken the roots. He may have used a wrong fertilizer or he may not have known how to combat natural enemies, such as insects, diseases, rodents, or predatory birds. He may have undertaken to grow too many other crops on the same land or he may not have understood the importance of drainage. He may even have produced as good or better crops than his neighbor, but have failed to sell to good advantage. He may have lost his crop by improper care after it was harvested.

5. Beyond the ordinary details of culture, as these nut industries have progressed, there come special problems of too great depth for the farmer to solve or for even the facilities of ordinary research. Already the nut farmer has been compelled to desist from the adequate use of commercial fertilizers, such as he employed before the war. He finds organic fertilizers too expensive, as the materials formerly used in their manufacture are now going into stock and chicken feeds. The mineral fertilizers are similarly high because potash is not yet coming from Germany in quantity and American potash is risky because of borax. The nut farmer is now endeavoring to work out his own salvation by the use of leguminous crops which can be turned under. There, again, particularly in the South, he finds trouble. Certain legumes are highly subject to nematodes, which feed upon their roots, multiply rapidly, destroy the crop, and then attack the roots of the nut trees. Another important problem is that of pruning. Investigations are lately demonstrating that unintelligent pruning often cuts off branches in which food material has been stored for the next season's crop and as a result there can be no crop. Or bad pruning may stimulate wood growth and effectively check the process of storing up crop material for the next year.

6. Business management is a crying need with a high percentage of the nut farmers. The simple taking of individual tree records in orchards has often demonstrated that a great majority of the trees are not paying their way. In such cases it is frequently quite possible to improve the cultural conditions affecting these trees so that their orchard performance can be converted into an asset instead of a liability. Without advice it is easy for the farmer to overexpend in fertilizers, pruning, spraying, or even in labor. He must rely upon the scientist, who advises him in regard to special problems, to

keep also in mind that he (the farmer) is dependent upon the net outcome of his orchard and that if greater profit could be derived from the land by some other use, or combination of uses, he wants to be so told.

7. As the successful production of a crop calls for highly specialized knowledge, so at the present time the marketing of nuts is a highly specialized line. The time has come that without organization there can not be even an approximate standard of condition in which the product is put upon the market or of prices asked or received. The walnut and almond industries are now so organized that approximately 80 per cent of those crops are sold under a standard of grade, package, and price through nonprofit cooperative organizations. The managers of these associations are highly paid efficient men of training and experience. The California Walnut Growers' Association, which is just now completing the marketing of nearly \$15,000,000 worth of nuts, maintains its own staff of investigators, who especially during the war accomplished a great deal in the combating of natural enemies and in developing new uses for walnuts and walnut products. As a result of research work by this staff, that association is now organizing a subsidiary branch of itself for the manufacture and sale at cost to its members of a dust spray which it has perfected.

The nut industry as a whole appears to be but in its infancy. The more highly developed of its American branches have made much progress, but it is safe to say that no horticultural industry of equal importance and so pregnant with possibilities has received so little attention at the hands of the State and Federal departments of agriculture. Over the entire country people are eating nuts as never before, not merely as condiments, but as staple articles of food. Farmers and landowners everywhere are planting nut trees and clamoring for information as to what to plant. Michigan has passed a State law providing for planting nut and other food-producing trees along its highways. Various organizations about the country are advocating the planting of nut trees as memorials to fallen soldiers in France. Thousands are being so planted and it is important that wise selections should be made.

Each nut industry has its special problems which if solved in time will mean the saving of many thousands of dollars to the farmers engaged in this important industry. The almond growers of California are confronted by special problems at this time. One of these is that of varieties. It has a superabundance of varieties. The Exchange reports that about 80 varieties are being grown in the State. The trade knows but five or six. Many of the 80 are so like the 5 or 6 that they can be mixed and sold under such names, although there are differences in their character and merit, especially in the orchard, which are apparent upon close examination. A great majority of the odd varieties are of mediocre value and bring a less price in the market than do the five or six, although they cost more to be sold. The Federal Department of Agriculture has taken up this problem of standardizing varieties of almonds and promises soon to point out their comparative merits in such a way that future planters will be discouraged in using any but the best sorts.

Another problem confronting the almond industry is that of foreign competition. The American market ordinarily consumes al-

monds in the shell only during the fall and early winter, whereas it accepts almond kernels or "shelled" almonds as they are known for practically the whole year. The cheapness of labor in foreign countries makes it possible for almonds to be cracked by hand before they are exported to the United States and placed here at a price far below that which can possibly be met by the American product, under present conditions. The almond growers have expended approximately \$100,000 in developing machinery for cracking the home product, but thus far without satisfactory success. It needs the assistance of the best engineers in the Government to perfect such a machine. It is imperative that such a machine be developed for this purpose in the near future as during the past five years almond planting in California has taken place at a rate that the home product must be enabled to enter the shelled, or the 12-month market, or production will inevitably soon exceed the supply. Apparently, the development of such a machine depends upon the question as to whether the home product is to enjoy a part of the 4-month trade only or whether it will successfully compete with the foreign product in the 12-month or the shelled market as well.

The California Almond Growers Exchange is urgently calling upon the Federal department to assist it in perfecting still better varieties than those already existing. It asks that this be done by searching the almond districts of southern Europe for varieties better than those already known here; also that crosses be made between varieties, so as to emphasize the strong points of good varieties and to eliminate the weak ones. The perfect variety has not yet been known in this country.

Other problems affecting the almond industry are bound to arise, in the anticipation of which it is exceedingly important that the Federal Department of Agriculture be given facilities for linking up its forces with the industry in effective manner. Present funds are quite inadequate for the purpose.

The CHAIRMAN. Are there any others who desire to be heard this morning?

We will be glad to hear Mr. Lannen.

**STATEMENT OF MR. THOMAS E. LANNEN, ATTORNEY AT LAW,
CHICAGO, ILL.**

Mr. LANNEN. My name is Thomas E. Lannen. I reside in Chicago. I dropped into this committee room simply to get some information. I did not know what subject was under discussion. That subject, as I understand it, has to do with the establishment of more experimental stations in the State of California to promote the grape-growing industry in that State.

For a number of years, up until this prohibition law was passed, I have been the general counsel of the wine and fruit-growing industry of the Mississippi Valley, including Arkansas and Ohio, and for a number of years those people have been endeavoring to get Congress to give some attention to the growing of grapes in the Mississippi Valley, Ohio, Arkansas, and New York. We have never had any attention paid us here in the East, and while I am heartily in sympathy with the position of the California grape growers in trying to save their grapes out there, and I do not want to be understood as

opposing that at all, I simply want to say that some little consideration ought to be given to the grape-growing industry of the East.

Down through the Ozark Valley, in Arkansas and Missouri, and also in Ohio, they have important grape-growing regions. The Ohio grape sections are in the vicinity of Sandusky. Those people are trying to use their product for making grape juice. They have the Catawba, Concord, and other grapes. There are also a number of grape growers in New York and up in Michigan; a large area of land is devoted to those vineyards.

Mr. McLAUGHLIN of Michigan. What is your suggestion?

Mr. LANNEN. I was taken by surprise; I did not know that this matter was to come up.

Mr. JONES. Any experimentation anywhere would inure to the benefit of all grape growers, would it not?

Mr. LANNEN. Not at all, because the situation is entirely different. The California grape mentioned here this morning is an imported grape; our grapes here in the East are native grapes. The grapes that they grow out there are known as the vinifera grapes, and any experiments made there would not do us any good here in the East.

Mr. McLAUGHLIN of Michigan. Those people for whom you are speaking can take care of themselves; and when this committee finds anybody who is willing and able to take care of their own business the committee is inclined to let them do it.

Mr. LANNEN. I am not so sure that they are able to take care of themselves in the present situation. They did not know that this matter was coming up before this committee.

Mr. ANDERSON. I suppose we will be expected to establish an experiment station in Arkansas, one in Missouri, one in Ohio, one in New York, and so on; is that what you have in mind?

Mr. LANNEN. We have always contended that there should be one station in the East to take care of our native grapes, but we have never been able to get it.

Please do not misunderstand me. I do not wish to oppose the request of the people of California. I am in sympathy with that. I appreciate the long fight they have had over many years to make a success of the industry out there.

The CHAIRMAN. Your contention is that if we do anything for the grape growers of California we should also do something for those of the Middle West and the East?

Mr. LANNEN. You should at least consider it.

The CHAIRMAN. We will take the matter under consideration.

DEVELOPMENT OF SWEET CORN FOR CANNING.

FRIDAY, JANUARY 16, 1920.

STATEMENT OF DR. WILLIAM A. TAYLOR, CHIEF OF THE BUREAU OF PLANT INDUSTRY, DEPARTMENT OF AGRICULTURE.

The CHAIRMAN. I desire to call the attention of the committee to a letter from Mr. Merritt Greene, chairman of the seed committee of the Iowa-Nebraska Cannery Association, relative to the development of sweet corn for canning.

Dr. Taylor has a word to say on this subject.

Dr. TAYLOR. This letter from Mr. Greene is an urgent recommendation for the appropriation of sufficient funds to make possible the experimental development of sweet corn specially adapted for the canning industry. It is one which I think I can best respond to through a short statement to be prepared and forwarded to the chairman of the committee.

The CHAIRMAN. And you will incorporate it with your remarks on the bill?

Dr. TAYLOR. Yes, sir; so that it can be incorporated in the hearings. I think the project has merit. It has not been provided for in the estimates as they stand.

The CHAIRMAN. Have you funds to take care of it?

Dr. TAYLOR. No, sir.

The CHAIRMAN. Would there be any money available for this purpose under any of the other items in the appropriation bill?

Dr. TAYLOR. No, sir.

The CHAIRMAN. If you will submit a statement, the matter will be given very careful consideration.

(A statement of the work proposed is covered in the following letter to the chairman of the committee:)

JANUARY 17, 1920.

HON. GILBERT N. HAUGEN,

*Chairman Committee on Agriculture,
House of Representatives.*

DEAR MR. HAUGEN: Referring to the letter of Mr. Merritt Greene, jr., Marshalltown, Iowa, chairman of the seed committee of the Iowa-Nebraska Cannery Association, urging that provision be made for constructive work in the development of pure and desirable strains of sweet corn for commercial canning, which you called to my attention at the close of the hearing yesterday, I would say that the question is one to which this bureau has given such attention in the past as its appropriations permitted. Our specialists, however, have not been able to devote much more than incidental attention to this problem during the last two or three years because of lack of men and funds.

Enough has been done in an experimental way to make clear that very much improvement in the production of corn for canning purposes can be accomplished through the development of pure strains of sweet corn of high producing capacity adapted to the regions where the crop is to be grown for canning. It has been determined that the best results are obtained by growing the sweet corn intended for seed in fields especially devoted to the production of seed rather than by selecting for seed the superior ears in fields grown for canning or from the corn left in such fields after the cannery product has been harvested.

The corn-canning industry has in recent years attained a magnitude which makes this product a very important item in our food supply. The States which lead in the production of sweet corn for canning purposes are Iowa, Illinois, Maine, Ohio, Maryland, New York, Wisconsin, Indiana, and Minnesota, with an acreage and pack approximately as follows:

Table showing sweet-corn acreage and pack for leading States.

State.	1918		1919	
	Acreage.	Pack.	Acreage	Pack.
		<i>Cases.</i>		<i>Cases.</i>
Iowa.....	57,361	2,533,636	40,880	2,338,336
Illinois.....	46,712	2,746,660	39,903	2,117,528
Maine.....	18,568	722,694	18,257	1,410,556
Maryland and Virginia.....	39,351	2,392,544	32,426	2,282,784
Ohio.....	34,839	1,760,820	20,188	1,408,692
New York.....	21,651	678,900	17,880	1,162,200
Indiana.....	23,065	539,204	15,863	494,896
Minnesota.....	9,016	568,500	7,636	634,328
Wisconsin.....	8,080	384,606	7,626	555,184

The total acreage devoted to sweet corn in the United States in 1918 was 290,188; in 1919 the total acreage was 217,900.

The question raised by Mr. Greene is therefore one of wide importance to the sweet-corn growers and the canning interests of the country. It is believed that if work is to be undertaken it should be inaugurated upon a basis which would be broadly applicable to the corn-canning industry of the country as a whole, including the eastern and northern regions, as well as those of the corn belt proper.

While the improvement work in Iowa would be of some value to the sweet-corn growers of other States, the varieties of this crop are so profoundly modified by the climatic conditions under which they are grown that work would need to be to some extent duplicated in the other important regions to be fully applicable to them.

Our specialists are in touch with those of the Iowa Experiment Station referred to by Mr. Greene and the work they have under way, and this bureau could cooperate very effectively and beneficially in that work in such a way as would insure effective prosecution and applicability of results to the several important sweet-corn canning regions. Additional funds to the extent of \$5,000 would be required over those carried by the Book of Estimates. This would necessitate an increase of the plant industry subappropriation for horticultural investigations (item 104, p. 97, of the committee print) by that amount. No change of wording of the paragraph would be required, as the project is directly in line with other work on the improvement of truck crops for consumption either in the fresh state or for canning.

Very truly, yours,

WILLIAM A. TAYLOR, *Chief of Bureau.*

UTILIZATION OF BY-PRODUCTS OF THE SWEET POTATO.

STATEMENT OF HON. CHARLES B. CRISP, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF GEORGIA.

The CHAIRMAN. Are there any others who desire to be heard?

Mr. LEE. Mr. Chairman, Representative Crisp is here and would like to make a short statement to the committee in regard to the sweet-potato industry.

The CHAIRMAN. We will be glad to hear Mr. Crisp.

Mr. CRISP. Gentlemen of the committee, I thank you for this privilege, and I will take only a few minutes of your time. I know that it is the policy of those in charge of legislation to try to curtail expenditures. I am in sympathy with that proposition, and I have that in view when I appear before you and ask for a small appropriation for the purpose of making this investigation; but, in my judgment, the great commercial possibilities involved abundantly justify the expenditure.

I have a resolution pending before your committee asking that an appropriation be made for the Department of Agriculture to make an experiment as to the possibility of developing a commercial industry from sweet potatoes.

With the permission of the committee I will read my resolution:

[H. J. Res. 529, Sixty-sixth Congress, second session.]

JOINT RESOLUTION Providing for an investigation leading to establishment of industry for manufacture of sugar and kindred products from sweet potatoes.

Whereas there is a world's shortage of sugar, which is causing the people of the United States much inconvenience and seriously injuring the business of manufacturers of soft drinks, candies, confections, and other lawful industries; and

Whereas it is the duty of the Government to exercise all of its powers to aid legitimate business and contribute to the comfort and necessities of its citizens; and

Whereas sweet potatoes can and will be grown in large quantities at small expense in the southern part of continental United States, if a steady commercial demand is established for them; and

Whereas sweet potatoes contain 10 per centum of sugar, much starch, glucose, and dextrin, all useful commercial commodities, which, if produced in large quantities at an economical cost, will tend to reduce the high cost of living: Therefore be it

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That the sum of \$100,000, or so much thereof as may be necessary, is hereby appropriated, out of any money in the Treasury of the United States not otherwise appropriated, to be immediately available, to enable the Secretary of Agriculture to conduct thorough investigations and experiments with a view to ascertaining if it be possible to establish a profitable commercial industry for the manufacture of sugar, sirup, starch, glucose, and dextrin from sweet potatoes.

Before introducing the resolution, I talked with Dr. Alsberg, Chief of the Bureau of Chemistry, who advised me that sweet potatoes contain about 10 per cent of cane sugar. I think that was about as much sugar as the sugar beet originally contained before it was developed. The sugar beet has now about 14 or 15 per cent of sugar.

The sweet potato contains many other properties which, I hope, are capable of being developed into a commercial industry. Dr. Alsberg stated to me that he was very much interested in the development of the sweet potato; that from past experiments he thought a splendid table sirup could be made from it; that it contained more starch than the white potato; and he thought it very probable that a starch industry could be developed from the sweet potato. He further stated that the sweet potato contains an adhesive known as dextrin, which was necessary for the mucilage used by the Government on postage and revenue stamps, the dextrin used in this country now being imported. Judging from my conversation with him, it was his opinion that some appropriation for this service would be well expended, and he thought there was great likelihood that a fine commercial industry could be established as a result of experimentation along these lines.

Dr. Alsberg recently appeared before this committee. I have just read his testimony, which has not yet been printed; but I ask the committee, when it is printed, to please do me the kindness to read Dr. Alsberg's testimony on this proposition.

I would like to read also to the committee a letter that I received from the Horticulturist of the Southern Railroad Development Service. You understand, of course, that all these great railroad lines are very much interested in developing agriculture in the sections along their lines; and this is from the horticulturist of one of the big railroad lines in the South. The letter addressed to me is as follows:

I note with deep interest the resolution you have offered providing for an investigation of the various possibilities of by-products that can be obtained from the sweet potato.

I have given this subject more or less study for the past several years and have become impressed with the thought that, in the range of products which can be made from this vegetable, it is remarkable that its possibilities have only been touched upon, embracing not only those of sirup and sugar but substitutes for chicory, rubberoid, rubber substitutes, dyes, vinegar, and other non-perishable food products.

That letter is signed by George E. Murrell, Horticulturist, Southern Railway Lines.

I do not know what the production per acre of sugar beets is; but in my section of Georgia we can raise anywhere from 200 to 400 bushels of sweet potatoes per acre, and they can be raised at very little cost. They are not raised now in very great quantities because there is no market for them. They are perishable in nature, and therefore the farmers do not raise them in any great quantity.

As the members of this committee know, the cotton boll weevil has been in Georgia and the South for several years. That simply means that the people have to diversify their crops in my section. In fact, they have already commenced to diversify. It is very hard for us to find a money-producing crop. We are beginning to raise peanuts and are beginning to go into the raising of hogs and cattle. We all realize that it is absolutely necessary to diversify, and I think that one of the greatest possibilities that we have is the development of the sweet potato. If paying commercial industries can be established with sweet potatoes as a basis, they can be raised in great quantities in Georgia and the South and will furnish a money crop for us, and will add to the commerce, industry, and prosperity of the United States.

Mr. RUBEY. What appropriation does your resolution contemplate?

Mr. CRISP. In the resolution which I introduced I ask for \$100,000. I leave the amount to the committee. Anything that the committee will give us will be thankfully received—"small favors thankfully received, larger ones in proportion."

Mr. McLAUGHLIN of Michigan. Mr. Crisp, has Dr. Alsberg made any estimate of the amount of money that he can properly use in this line of work?

Mr. CRISP. No, sir; he has not. I have just read his testimony. It has not yet been printed, but the clerk gave me the typewritten pages, and I read it over hurriedly.

Mr. PURNELL. I wonder if the same thing is true of all varieties of sweet potatoes.

Mr. CRISP. I should think so. Down in our section we have two or three varieties of sweet potatoes. Some people say that one is a little sweeter than the others, and some claim that one is a little more palatable than others as a table product, but I think they must be about 95 per cent the same, all of them.

The CHAIRMAN. Without objection, the extract from Dr. Alsberg's testimony will be inserted.

(The extract is printed as follows:)

Dr. ALSBERG. Yes. May I bring up one other thing that has to do with future work, not under this item, but related to it? It is the utilization of the sweet potato. There have been inquiries on the part of people in the sweet potato producing sections of the country for some work which will utilize the cull sweet potatoes and the overproduction. I wish to bring that to the attention of the committee, because Representative Crisp is one of the gentlemen who has consulted me on this matter. Of course we have no funds for the work at present. I believe it to be possible to establish ultimately a very valuable agricultural industry, using sweet potatoes as its raw material. Sweet potatoes contain naturally 10 per cent of cane sugar, and it is possible by treating sweet potatoes with a small amount of malt to convert the starch in the sweet potato into malt sugar, and thus to make a most delicious sirup for table use.

The sweet potato contains more starch than the white potato. It is one of the cheapest sources of starch, so that it should be possible to establish a sweet-

potato starch industry in the United States. If you have starch, of course you can produce from it malt sugar and glucose and a material known as dextrine, which is used as an adhesive to gum postage stamps, envelopes, and the like.

It is more palatable and more uniform. We offered sirup that we made from sugar cane grown in south Georgia on the New Orleans Molasses Exchange, simply stating that it was a cane sirup. They did not know that it was made by the United States Government or by whom it was made. That sirup brought 10 cents a gallon more than the highest market price for any other sirup of that type during that season. Of course we did not own that sirup. It was made under our supervision by the manufacturers. We found, down where it was made, that the neighbors had bought up all there was of it, because it was superior to anything else they could get in that neighborhood. We have not been able to close that investigation because we need yeast.

Mr. LEE of Georgia. I have listened to your statement with much interest, and, realizing the great possibilities that may be developed from this investigation, I hope the committee will act favorably on your request and make an appropriation.

The CHAIRMAN. We thank you for your statement, Mr. Crisp.

COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Thursday, December 18, 1919.

The committee met at 2 o'clock p. m., pursuant to recess, Hon. Gilbert N. Haugen (chairman) presiding.

The CHAIRMAN. The committee will come to order. We have with us to-day Gen. Hulings, who desires to be heard on H. R. 10130, "A bill to provide for the establishment of a bureau of production and distribution in the Department of Agriculture." Gen. Hulings, we will be glad to hear you.

STATEMENT OF HON. WILLIS J. HULINGS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF PENNSYLVANIA.

Mr. HULINGS. Mr. Chairman, this bill has been presented by me at the request of a gentleman out in my home town who is a very intelligent man, a thoughtful fellow, and a man of large experience in affairs. He sent the bill to me, and when I looked it over I thought it was one of the most foolish things I had seen for a long time, but I presented it by request. About a week or two ago I was back home and had a talk with him about it, and I believe that about two-thirds of this bill can be cut out.

I might say, first, that the leading thought in the bill is for the Department of Agriculture to establish in each county an agent who shall act as a go-between between the producer and the consumer of food products. He has incorporated in the bill something about slaughterhouses and all that sort of thing which I thought had better be cut out, but I do believe that an examination of the bill, or, rather, the contemplation of the idea that he has in mind, might give the committee some valuable ideas or suggestions.

There is one scheme providing for the cooperation of these agents with the Farm Loan Board or to provide for actual statements as to the number of men employed in agriculture. I was looking over the census reports required; and if those reports were fully made it

would give the Government a very accurate idea of the agricultural interests of the country, the amount of land, the amount of cultivated land, good land, and all that sort of thing. As you know very well, that sort of information is now provided in a slipshod kind of way. The thing he proposes could be done so that you would have practical and actual results.

A scheme of having a Government agent who would cut out to a very large degree the middleman between the producer and the consumer, or the retail dealer, could be carried out at a very small expense and, I believe, at a great saving to the ultimate consumer, without affecting the price the producer would receive.

The CHAIRMAN. The purpose is to put the producer in closer touch with the consumer?

Mr HULINGS. It just brings them right in touch. Here is an agent who makes it his business to know what is being produced in the county and who is producing it; he knows what can be produced in his county, and he makes these sales to the retailer or to the consumer, simply acting as a middle man.

There are a lot of proposals here, as you will see, such as provision for a commission which shall be established, which he calls a bureau, in the Department of Agriculture, to be governed by a commission on production and distribution consisting of the Secretary of the Treasury, the Secretary of Agriculture, and the director; and then his bill goes on and makes the director responsible for everything. I think those powers of the director should be cut out and that they should all be lodged in the commission itself and the director, who is appointed by the President.

Now, gentlemen, I can not give you any ideas about what this might comprehend, because, in your investigations and study of this great subject, you know more about it than I or he does, but I just wanted to have the opportunity to ask you, if you feel disposed to look into the matter, to give the author of the bill an opportunity to be heard at some subsequent time.

The CHAIRMAN. We will try to make arrangements later. You may say to your constituent that the matter will be given careful consideration.

Mr. HULINGS. I want to say that since this bill has been presented, scores of wholesale dealers and meat people who have heard about this bill have called to see me, indicating that they regard at least some of the ideas suggested in the bill as being meritorious.

The CHAIRMAN. Thank you, Gen. Hulings. The committee will now adjourn.

(Thereupon, the committee adjourned until further call of the chairman.)

AGRICULTURE APPROPRIATION BILL

FEBRUARY 3, 1920.—Committed to the Committee of the Whole House on the state of the Union and ordered to be printed.

Mr. HAUGEN, from the Committee on Agriculture, submitted the following

REPORT.

[To accompany H. R. 12272.]

The Committee on Agriculture submits the following report to accompany bill (H. R. 12272) making appropriations for the Department of Agriculture for the fiscal year ending June 30, 1921.

The committee held hearings extending over a period of six weeks on the estimates presented by the department. Representatives of the Department of Agriculture and others interested appeared before the committee and discussed in detail the various items.

The total sum carried by the present bill is \$30,540,034. This is a decrease of \$3,359,727 below the appropriation act for the fiscal year 1920, a decrease of \$7,132,823 below the regular and supplemental estimates submitted by the department, and a decrease of \$11,558,204 below the estimates of the bureaus. The committee has not been unmindful of the valuable work of the Department of Agriculture and the need for supporting and enlarging many important activities for the benefit of the farmers, but, in view of the unusual financial conditions confronting the country at the present time, the committee believes it imperative to economize in every possible way and has endeavored to accomplish this result in the present bill without seriously crippling the work of the department. While the decreases are large, they have been made principally in regulatory and administrative items rather than in items providing for food-production activities. Increases have been provided in a number of the items, but in each case only after a very thorough investigation of the necessity therefor, and these increases are recommended by the committee.

The following table shows the appropriations for the present fiscal year, the estimates submitted by the various bureaus and offices to the Secretary of Agriculture, the regular and supplemental estimates submitted by the Department of Agriculture to the committee, the amount carried in this bill, the increases and decreases of the bill as compared with the estimates submitted by the department, and the increases and decreases of the bill as compared with the appropriation for the present fiscal year.

Estimate of appropriations, 1921, United States Department of Agriculture.

Bureau or office.	Appropriation in Agricultural act, 1920.	Bureau or office estimates, 1921.	Department estimates, 1921.	Reported by House committee.	Increase over (+) or decrease below (-) department estimates, 1921.	Increase over (+) or decrease below (-) 1920 appropriations.
Office of the Secretary.....	\$500,520	\$477,140	\$475,860	\$466,940	- 88,920	- 133,540
Office of Farm Management.....	202,560	611,900	611,990	322,130	- 289,860	+ 19,549
Weather Bureau.....	1,840,210	2,465,670	2,228,150	1,879,010	- 349,140	- 1,209
Bureau of Animal Industry.....	5,783,231	6,921,287	6,118,451	5,327,236	- 791,215	- 455,995
Bureau of Plant Industry.....	3,379,638	3,920,098	3,606,898	3,038,639	- 568,259	- 310,999
Forest Service.....	5,966,869	7,063,427	6,557,865	5,777,842	- 819,808	- 189,027
		139,755	139,755			
Bureau of Chemistry.....	1,391,571	1,502,411	1,424,511	1,321,591	- 102,920	- 60,980
Bureau of Soils.....	491,235	621,045	620,065	541,035	- 79,060	- 49,808
Bureau of Entomology.....	1,371,360	2,163,940	1,219,260	1,073,460	- 250,780	- 297,900
		105,000	105,000			
Bureau of Biological Survey.....	742,170	1,282,655	978,005	782,170	- 196,835	- 40,000
Division of Accounts and Disbursements.....	44,620	50,620	50,620	48,220	- 2,400	+ 3,600
Division of Publications.....	240,140	379,030	362,480	372,570	+ 10,090	+ 132,430
Bureau of Crop Estimates.....	371,102	1,164,715	967,782	322,856	- 644,926	- 48,246
Library.....	50,160	61,680	61,080	50,880	- 10,200	+ 720
Miscellaneous expenses, Department of Agriculture.....	175,500	153,000	141,000	136,000	- 5,000	- 33,500
Rent in the District of Columbia.....	100,000	150,000	150,000	164,666	+ 14,666	+ 64,666
States Relations Service.....	4,905,820	4,973,500	4,968,540	4,866,120	- 102,420	- 34,700
Bureau of Public Roads.....	594,320	774,320	748,120	490,620	- 257,500	- 103,700
Bureau of Markets.....	2,811,365	3,453,845	3,023,395	2,478,569	- 544,826	- 322,796
Insecticide and Fungicide Board.....	123,940	141,910	141,910	115,350	- 26,560	- 8,590
Federal Horticultural Board.....	129,000	246,500	236,500	169,050	- 67,450	- 40,050
MISCELLANEOUS APPROPRIATIONS.						
Demonstrations on reclamation projects.....	48,600	47,000	47,000	30,000	- 17,000	- 18,600
Fighting and preventing forest fires.....		1,000,000	1,000,000	250,000	- 750,000	+ 250,000
Cooperative fire protection of forested watersheds of navigable streams.....	100,000	500,000	200,000	75,000	- 125,000	- 25,000
Experiments and demonstrations in live-stock production in the cane-sugar and cotton districts of the United States.....	60,000	60,000	60,000	46,500	- 13,500	- 13,500
Experiments in dairying and live-stock production in semiarid and irrigated districts of the western United States.....	40,000	40,000	40,000	30,000	- 10,000	- 10,000
Eradication of the foot-and-mouth and other contagious diseases of animals.....	1,000,000	1,000,000	1,000,000	50,000	- 950,000	- 950,000
Eradication of pink bollworm.....	595,800	573,300	388,560	288,560	- 100,000	- 307,240
Acquisition of lands under the Weeks laws.....	600,000					- 600,000
Plant dust explosions and fires.....	100,000	155,000	100,000	25,000	- 75,000	+ 25,000
Agricultural exhibits.....						- 100,000
Grand total, Department of Agriculture.....	33,899,761	42,098,238	37,672,857	30,540,034	-7,132,823	-3,359,727

¹ Supplemental estimate for administration of the Thunder Mountain area, Idaho.

² Supplemental estimate for control of the Japanese beetle.

REVENUES AND RECEIPTS.

In considering the above table it should be borne in mind that the annual, permanent, and emergency appropriations of the Department of Agriculture are offset to some extent by certain revenues and receipts resulting from or incident to its activities. These revenues and receipts during the fiscal year 1919 amounted to \$15,607,150.98, and were covered into the Treasury. They include the following items:

Receipts from national forests, \$4,358,414.86.—The receipts from the national forests were derived from the following sources, and represent an increase of \$783,484.79 over the year 1918:

(a) Timber, \$1,526,188: Sales of all classes of stumpage on the national forests, payments for timber destroyed on rights of way or other uses, payments for timber cut or removed without previous permit, and damages assessed against persons setting fire to forest areas.

(b) Grazing, \$2,609,169.85: Payments for grazing privileges on national forest ranges for cattle, horses, swine, sheep, and goats, and for unauthorized use of grazing areas.

(c) Special uses, \$223,057.01: Payments for use of forest lands for various purposes, such as residences, camps, cabins, hotels, rights of way, agriculture, wharves, water power, telegraph and telephone lines, reservoirs, conduits, etc., and use of forest areas for turpentine extraction.

Benefits derived by States from receipts from national forests.—Under existing law 10 per cent of the forest receipts is expended by the Secretary of Agriculture in the construction of roads and trails, and 25 per cent of the forest receipts is paid to the States by the Federal Government for the benefit of county schools and roads. The amounts expended in or paid in each State during the fiscal year 1919 are shown below:

States.	School and road moneys payable to States.	Road and trail moneys expendable by Secretary of Agriculture.
Alabama.....	\$123.08	\$40.23
Alaska.....	25,456.77	10,182.71
Arizona.....	113,152.97	45,261.18
Arkansas.....	16,563.88	6,425.55
California.....	129,259.73	51,703.89
Colorado.....	115,048.98	46,019.59
Florida.....	4,075.77	1,630.31
Georgia.....	1,049.99	419.99
Idaho.....	115,707.60	46,307.04
Maine.....	446.50	178.40
Michigan.....	146.72	58.69
Minnesota.....	2,944.25	1,177.70
Montana.....	95,042.81	38,017.13
Nebraska.....	3,601.01	1,440.40
Nevada.....	30,688.39	12,275.36
New Hampshire.....	4,930.03	1,972.01
New Mexico.....	84,661.06	33,864.42
North Carolina.....	5,559.45	2,223.78
Oklahoma.....	1,327.17	530.87
Oregon.....	115,405.74	46,162.30
South Carolina.....	220.36	88.15
South Dakota.....	16,784.41	6,713.76
Tennessee.....	2,134.17	853.67
Utah.....	68,650.64	27,460.25
Virginia.....	3,283.14	1,313.26
Washington.....	54,772.57	21,909.03
West Virginia.....	238.77	95.51
Wyoming.....	58,550.98	23,420.37
Total.....	1,069,886.88	427,954.75

Additional benefits derived by Arizona and New Mexico from receipts from national forests.—The States of Arizona and New Mexico received additional shares of national-forest receipts for their school funds on account of school lands included within national forests, as follows: Arizona, \$58,775.83; New Mexico, \$20,091.49.

Telegrams over Government lines, \$6,146.75.—These receipts are derived through the transmission of private messages over Weather Bureau telegraph lines in isolated regions where commercial lines are not yet available.

Sale of cotton standards, \$5,665.31.—These receipts are derived through the sale of practical forms of the official cotton standards prepared by the department to the various exchanges, spot-market dealers, merchants, cotton mills, agricultural colleges, and textile schools.

Cost of cotton-futures disputes, \$10,454.20.—These receipts are derived through the settlement of disputes referred to the department from time to time by either party to a contract of sale of cotton for future delivery, for determination as to the quality, grade, or length of staple of the cotton, in accordance with the provisions of the United States cotton-futures act.

Sale of loose cotton, \$34,693.24.—In the preparation of practical forms of the official cotton standards it is necessary for the department to purchase in the open market considerable quantities of cotton in order to match the various types and classes of cotton. A large quantity of the cotton thus purchased is found unsuitable for use in making copies of the official cotton standards, and this is disposed of to dealers at the best price obtainable.

Cost of grain-standards appeals, \$7,545.91.—These receipts represent charges made for the settlement of appeals from the grading of grain by licensed inspectors; also disputes as to the correct grade of grain entering into interstate commerce between noninspection points referred to the Department of Agriculture in accordance with the provisions of the United States grain-standards act.

Cost of inspection of perishable food products, \$19,227.56.—These receipts are derived from the inspection of perishable food products authorized in the general expense appropriation made to the Bureau of Markets for carrying on such work.

Costs of classification of cotton, \$1,491.75.—These receipts represent charges made for classifying cotton pursuant to the seventh subdivision of section 5 of the United States cotton-futures act. The receipts are made a revolving fund as provided in said act under the head "Classification of cotton, wheat-price guaranty act of March 4, 1919."

Sale of photo prints, lantern slides, etc., \$688.47.—These receipts are derived through the sale of photo prints, lantern slides, transparencies, blue prints, and motion-picture films to State institutions, publishers, and individuals for use in lecture work and in connection with the preparation of publications bearing on agriculture and related subjects.

Sale of hearings, \$178.70.—These receipts are derived through the sale of hearings conducted by the department from time to time in connection with the enforcement of regulatory acts, particularly the food and drugs act and the insecticide and fungicide act. These hearings are sold to corporations, firms, and individuals desiring them at the rate of 10 cents per folio to cover the cost of preparing them.

Sale of card indexes, \$202.75.—These receipts are derived through the sale of card indexes of experiment station literature to various agricultural colleges, experiment stations, educational institutions, and libraries throughout the country.

Sale of other miscellaneous property and collections, \$244,606.16.—This covers the sale of unserviceable property owned by the department which has been passed upon and condemned by a board of survey appointed by the Secretary of Agriculture. It also covers the proceeds derived through the sale of farm products obtained at the various experiment stations of the department, other than the insular experiment stations; animals and animal products no longer needed in the work of the department; forest maps and maps and publications of the Weather Bureau; pathological and zoological specimens; samples of pure sugars and naval stores; microscopical specimens, etc.

Sale of products, agricultural stations, Alaska, Hawaii, Porto Rico, Guam, and the Virgin Islands, \$4,284.40.—These receipts are derived through the sale of agricultural products obtained on the land belonging to the agricultural experiment stations in Alaska, Hawaii, Porto Rico, island of Guam, and the Virgin Islands.

Sale of seeds to farmers, \$859,650.48.—These receipts are derived through the sale of seeds to farmers for cash, at cost, in sections where, on account of drought or other unfavorable conditions, such assistance was needed. Such sales are specifically provided for in the food-production act.

Sale of nitrate of soda to farmers, \$8,768,268.85.—These receipts are derived through the sale of nitrate of soda to farmers for cash, at cost, in sections where a special need for such assistance existed. Such sales are specifically provided for in the food-control act.

Miscellaneous items, \$1,285,631.59.—This amount includes \$547,928.89 from contributions toward cooperative work in forest investigations; \$441,678.21 from refunds on mileage and scrip books, and \$296,024.49 from other executive departments of the Government in payment of supplies furnished and services rendered by the Department of Agriculture.

The following table shows the appropriations for the Department of Agriculture for the current fiscal year:

Titles of appropriations.	Total of appropriations for 1920.
Agricultural appropriation act.....	\$33,899,761
Permanent annual appropriations.....	28,235,000
Cooperative construction of rural post roads (Post Office appropriation act for fiscal year 1920).....	75,000,000
Federal forest road construction (Post Office appropriation act for fiscal year 1920).....	3,000,000
Protection of lands involved in California and Oregon railroad forfeiture suit (sundry civil).....	25,000
Printing and binding (sundry civil).....	600,000
Rent of buildings (sundry civil).....	41,509
Grand total of all appropriations for the Department of Agriculture.....	140,801,270

In the following pages the reasons for all increases in appropriations are given, and all changes in amounts in the statutory rolls are indicated.

OFFICE OF THE SECRETARY.

STATUTORY SALARIES.

(P. 2, line 3.)

The statutory roll of the office of the Secretary carries a decrease of \$33,580, as indicated in detail in the following table:

Places dropped:

1 assistant secretary	\$5,000	
4 firemen, at \$720 each	2,880	
1 carriage driver	600	
		<hr/> \$8,480

Transfers to statutory roll. Division of Publications, and the Secretary's roll correspondingly reduced:

1 assistant in charge of information	3,000	
1 assistant	2,000	
1 assistant editor	2,000	
4 assistant editors, at \$1,800 each	7,200	
1 assistant editor	1,600	
1 expert on exhibits	3,000	
1 assistant in exhibits	2,000	
4 clerks, class 2	5,600	
4 clerks, class 1	4,800	
2 clerks, at \$1,000 each	2,000	
1 laborer	600	
1 messenger boy	600	
2 messenger boys, at \$480 each	960	
		<hr/> 35,360

Transfers from extra labor fund, office of the Secretary, and that fund correspondingly reduced:

2 charwomen, at \$240 each, 1 to statutory roll, Division of Publications, and 1 to statutory roll, Bureau of Crop Estimates	480	
Reduction in "extra labor" fund on account of transfers to statutory roll, office of the Secretary	6,080	
Reduction in "extra labor" fund	960	
		<hr/> 7,520
		<hr/> 51,360

Transfers from funds of other bureaus, which funds have been correspondingly reduced:

10 firemen, at \$1,080 each, 1 from meat inspection, Bureau of Animal Industry; 1 from black and stripe rust, 1 from blister rust control, and 1 from administrative expenses, Bureau of Plant Industry; 2 from food and drugs act, Bureau of Chemistry; 1 from deciduous fruit insects, Bureau of Entomology; 1 from farmers' cooperative demonstrations in North and West, States Relations Service; 1 from food supply investigations, and 1 from cotton futures act, Bureau of Markets	\$10,800	
1 skilled laborer, from dairy industry, Bureau of Animal Industry	900	
		<hr/> 11,700

Transfers from lump fund for extra labor to statutory roll, office of the Secretary, and the lump fund correspondingly reduced:

1 superintendent of telegraph and telephones	2,000	
1 chief engineer	1,800	
1 foreman of stable	1,080	
1 skilled laborer	960	
1 charwoman	240	
		<hr/> 6,080
		<hr/> 17,780

Actual decrease

33,580

OFFICE OF FARM MANAGEMENT.

STATUTORY SALARIES.

(P. 4, line 17.)

The statutory roll of the Office of Farm Management carries a decrease of \$12,300, as indicated in the following table:

Places dropped:	
9 clerks, at \$900 each.....	\$8, 100
5 clerks or map tracers, at \$840 each.....	4, 200
Actual decrease.....	12, 300

GENERAL EXPENSES.

Farm management and farm practice investigations (p. 5, line 6).—There is an increase in this item of \$31,840. This amount has been added to the sum set aside in the proviso for ascertaining the cost of production of the principal staple agricultural products, as has \$23,160, which is deducted from the amount heretofore available for general farm-management work, the committee being of the opinion that a large appropriation should be devoted to this important investigation.

WEATHER BUREAU.

STATUTORY SALARIES.

(P. 5, line 18.)

The statutory roll of the Weather Bureau carries an apparent increase of \$4,020, but there is an actual decrease of \$1,200, as indicated in detail in the following table:

Places dropped:	
4 firemen, at \$720 each.....	\$2, 880
New places:	
2 firemen, at \$840 each.....	1, 680
Actual decrease.....	\$1, 200
Transfers from lump funds of this bureau, which have been correspond-	
ingly reduced:	
2 clerks, class 1, from aerological stations.....	2, 400
1 supervising instrument maker, from aerological stations.....	1, 620
1 repairman, from station salaries.....	1, 200
	5, 220
Apparent increase.....	4, 020

GENERAL EXPENSES.

Expenses outside of Washington (p. 9, line 10).—There is an apparent decrease in this item of \$1,200, but, as that amount has been transferred to the statutory roll, there is actually no change.

Aerological investigations (p. 9, line 18).—There is an apparent decrease in this item of \$4,020, but, as that amount has been transferred to the statutory roll, there is actually no change.

BUREAU OF ANIMAL INDUSTRY.

STATUTORY SALARIES.

(P. 10, line 2.)

The statutory roll of the Bureau of Animal Industry carries an apparent increase of \$103,240, but there is no actual increase, as indicated in detail in the following table:

Transfers from lump funds of this bureau, which funds have been correspondingly reduced:

1 executive clerk, from inspection and quarantine.....	\$2. 000
3 clerks, class 4, 2 from dairy industry, and 1 from meat inspection.....	5. 400
1 clerk, class 3, from diseases of animals.....	1. 600
4 clerks, at \$1,500 each, 1 from inspection and quarantine, 1 from dairy industry, 1 from eradicating hog cholera, and 1 from meat inspection.....	6. 000
2 clerks, class 2, 1 from eradicating hog cholera and 1 from meat inspection.....	2. 800
1 clerk, from meat inspection.....	1. 380
1 clerk, from eradicating cattle ticks.....	1. 320
1 clerk, from meat inspection.....	1. 260
39 clerk, class 1, 1 from inspection and quarantine, 8 from tuberculosis eradication, 5 from eradicating cattle ticks, 2 from dairy industry, 2 from eradicating hog cholera, and 21 from meat inspection.....	46. 800
11 clerks, at \$1 100 each, 1 from inspection and quarantine, 1 from eradicating cattle ticks, 1 from tuberculosis eradication, 4 from animal husbandry, 3 from eradicating hog cholera, and 1 from meat inspection.....	12. 100
4 clerks, at \$1,030 each, 1 from inspection and quarantine and 3 from tuberculosis eradication.....	4. 320
1 clerk, from eradicating hog cholera.....	1. 020
7 clerks, at \$1,000 each, 3 from tuberculosis eradication, 2 from dairy industry, and 2 from eradicating hog cholera.....	7. 000
1 skilled laborer, from abortion of animals.....	1. 200
1 skilled laborer, from tuberculosis eradication.....	1. 000
1 skilled laborer, from dairy industry.....	900
2 messengers or laborers, at \$340 each, 1 from dairy industry and 1 from animal husbandry.....	1, 680
1 messenger boy, from tuberculosis eradication.....	660
9 messenger boys, at \$480 each, 1 from inspection and quarantine, 2 from tuberculosis eradication, 1 from dairy industry, 1 from animal husbandry, 1 from diseases of animals, 1 from abortion of animals, 1 from eradicating hog cholera, and 1 from meat inspection.....	4, 320
1 charwoman, from meat inspection.....	480
Apparent increase.....	103. 240

GENERAL EXPENSES

Inspection and quarantine (p. 13, line 3).—There is an apparent decrease in this item of \$5,360, but, as \$7,360 has been transferred to the statutory roll, the actual increase is \$2,000. This amount will be used for the inspection and testing of animals for export. This work is constantly increasing. In recent months there has been an unusual demand for the bureau inspectors to test animals for export and to inspect the vessels carrying such animals.

Tuberculosis of animals (p. 13, line 13).—There is an apparent decrease in this item of \$200,000, but, as \$19,560 has been transferred to the statutory roll, the actual decrease is \$180,440. The decrease is due to a reduction of \$500,000 in the indemnity fund. The experience of the past year has shown that less money will be required

for indemnities and a larger amount for administrative and operating expenses. The committee therefore increased the amount for administrative and operating expenses from \$500,000 to \$800,000, \$100,000 of which it recommends be made immediately available; and decreased the amount for indemnities from \$1,000,000 to \$500,000.

The word "*hereafter*" has been added to the third proviso, on page 15, relative to the interstate shipment of cattle for immediate slaughter; this will make the legislation permanent and obviate the necessity of repeating the language annually in the appropriation bill.

Tick eradication (p. 16, line 3).—There is an apparent decrease in this item of \$60,820, but, as \$8,420 has been transferred to the statutory roll, the actual decrease is \$52,400. This amount has heretofore been used for live-stock and dairy demonstration work, in cooperation with the States Relations Service, but the committee recommends that this work be discontinued. The language pertaining to this work has therefore been omitted. The proviso has also been amended so as to prohibit the purchase of animals, as well as materials, in connection with tick-eradication demonstrations.

Dairy investigations (p. 16, line 13).—There is an apparent decrease in this item of \$50,370, but as \$11,720 has been transferred to the statutory roll of the bureau, and \$900 to the statutory roll of the Secretary's Office, the actual decrease is \$37,750.

Animal husbandry investigations (p. 16, line 17).—There is an apparent decrease in this item of \$58,500, but as \$5,720 has been transferred to the statutory roll, the actual decrease is \$52,780, \$16,940 in the amount set aside for experiments in breeding and maintenance of horses for military horses, \$33,640 in the amount set aside for poultry feeding and breeding, and \$2,200 in the amount for general animal husbandry work.

Animal disease investigations (p. 17, line 11).—There is an apparent decrease in this item of \$18,160, but as \$3,760 has been transferred to the statutory roll, the actual decrease is \$14,400.

Inasmuch as the amount set aside in the proviso for the investigation of contagious abortion has been reduced \$24,400, however, there is thereby released for other work the sum of \$10,000, which the committee recommends be used for the investigation of roundworm of hogs. These parasites are responsible for losses among young pigs amounting to millions of dollars each year.

Hog cholera (p. 17, line 21).—There is an apparent decrease in this item of \$131,045, but, as \$12,100 has been transferred to the statutory roll, there is an actual decrease of \$118,945.

Dourine eradication (p. 18, line 11).—There is a decrease in this item of \$23,600.

MEAT INSPECTION.

(P. 18, line 19.)

There is an apparent decrease in this item of \$11,380, but, as \$35,680 has been transferred to statutory rolls, there is an actual increase of \$24,300 to be used for salaries.

The language of the paragraph has been amended by inserting the words "*including the purchase of tags, stamps, and labels printed in course of manufacture.*" The language of recent enactments relative to printing, strictly construed, prevents the department from securing

such supplies from any other source than the Government Printing Office, except with the previous consent of the Joint Committees on Printing. Attention is invited to the fact that similar authority has been carried in the legislative, executive, and judicial appropriation acts for a number of years, covering like supplies for the Treasury Department, this item reading: "For stationery, including tags, labels, and index cards printed in course of manufacture." These articles are used for the marking of coins and other articles—uses which appear to be exactly comparable with those to which the meat-inspection supplies are devoted.

The provisions regarding the inspection of equine meat and for the payment of overtime work in packing establishments have been omitted, being permanent legislation, but proper reference has been made thereto by the addition of the following words: "*as extended to equine meat by the act of July 24, 1919 (public No. 22, 66th Cong.)*."

BUREAU OF PLANT INDUSTRY.

STATUTORY SALARIES.

(P. 19, line 5.)

The statutory roll of the Bureau of Plant Industry carries an apparent increase of \$35,680, but there is an actual decrease of \$1,200, as indicated in detail in the following table:

Transfers from lump funds of this bureau, which funds have been correspondingly reduced:

1 executive clerk, from administrative expenses.....	\$1, 980
3 clerks, class 4, 1 from blister-rust control, 1 from black and stripe rust investigations, and 1 from purchase and distribution of valuable seeds.....	5, 400
3 clerks, class 3, 1 from citrus canker eradication, 1 from crop physiology, 1 from barberry eradication (and 1 from demonstrations on reclamation projects).....	4, 800
1 clerk, from forage crop investigations.....	1, 500
3 clerks, class 2, 1 from blister-rust control and 2 from black and stripe rust investigations.....	4, 200
12 clerks, class 1, 1 from forest pathology, 1 from blister-rust control, 2 from cotton and truck diseases, 1 from cereal investigations, 2 from black and stripe rust investigations, 1 from barberry eradication, 1 from alkali and drought resistant plants, 1 from western irrigation agriculture, 1 from new and rare seeds, and 1 from purchase and distribution of valuable seeds.....	14, 400
1 clerk, from blister-rust control.....	1, 080
1 messenger or laborer, from black and stripe rust investigations.....	720
1 general mechanic, from Arlington Farm.....	1, 400
1 mechanical assistant, from horticultural investigations.....	1, 400
	<hr/> \$36, 880

Place dropped:

1 blacksmith.....	1, 200
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Actual decrease.....	<hr/> 1, 200
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Apparent increase.....	35, 680
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GENERAL EXPENSES.

Citrus canker (p. 21, line 21).—There is an apparent decrease in this item of \$86,600, but, as \$1,600 has been transferred to the statutory roll, the actual decrease is \$85,000.

Forest pathology (p. 22, line 14).—There is an apparent decrease in this item of \$1,200, but, as that amount has been transferred to the statutory roll, there is actually no change.

White-pine blister rust (p. 22, line 14).—There is an apparent decrease in this item of \$6,560, but as this amount has been transferred to statutory rolls, there is actually no change.

Cotton, truck, and forage crop investigations (p. 23, line 11).—There is an apparent increase in this item of \$7,600, but, as \$2,400 has been transferred to the statutory roll, the actual increase is \$10,000. This amount will be used for investigating a number of serious potato diseases, including a study of the potato wart in cooperation with the Federal Horticultural Board. There is a decrease of \$14,700 in the appropriation for the eradication of the potato wart under the Federal Horticultural Board. A group of potato diseases classed as "mosaic" also presents a series of difficult problems, including a determination of the exact nature of the cause of the diseases and of questions relating to their transmission by insects. The importance of this work is indicated by the fact that losses in infected fields frequently exceed 20 per cent.

Crop physiology (p. 23, line 13).—There is an apparent decrease in this item of \$8,400, but, as \$1,600 has been transferred to the statutory roll, the actual decrease is \$6,800.

Soil-fertility investigations (p. 23, line 22).—There is an increase of \$10,000 in this item. This amount will be used in meeting the increasing demands for information regarding new fertilizer materials. During the past few years heavy losses have resulted to farmers through the application of fertilizers regarding which no experience from their use was available. Many of these fertilizer materials were of comparatively little value and some were actually injurious. New nitrogen products will undoubtedly appear in fertilizers during the next few years, and these should be investigated promptly. It is proposed to investigate and give field tests to all materials representing new sources of potash, phosphoric acid, and nitrogen as they appear in the fertilizer market from time to time.

Crop acclimatization and fiber-plant investigations (p. 24, line 1).—There is a decrease in this item of \$18,000. The provision setting aside \$3,000 for experiments in the production of New Zealand flax has been eliminated, as has also the proviso increasing the limit on the cost of farm buildings under this item.

Drug-plant and poisonous-plant investigations (p. 24, line 9).—An increase of \$1,000 has been provided in this item for the extension of the investigations of stock-poisoning plants, in cooperation with the Bureau of Animal Industry.

Cereal investigations (p. 25, line 4).—There is an apparent decrease in this item of \$92,800, but, as \$12,800 has been transferred to statutory rolls, the actual decrease is \$80,000. This includes a reduction of \$50,000 in the proviso for the investigation and control of black rust, leaf rust, and stripe rust.

The provisos setting aside \$40,000 for the study of corn improvement and methods of corn production and \$25,000 for the investigations of corn root and stalk diseases have been eliminated. This is done in order to simplify the language of the paragraph, and also to reduce the amount of clerical and overhead expenses, but it is the committee's intention that the work heretofore carried on under these provisions should be continued.

Alkali and drought resistant plant investigations (p. 26, line 3).—There is an apparent decrease in this item of \$4,200, but, as \$1,200

has been transferred to the statutory roll, the actual decrease is \$3,000.

Sugar-plant investigations (p. 26, line 5).—There is a decrease in this item of \$9,115.

The provisos setting aside \$10,000 for the development and improvement of American strain of sugar-beet seed and for investigations in connection with the production of cane and sorghum sirups have been eliminated. This merely eliminates superfluous language in the item, but it is the thought of the committee that the work should be carried on along present lines.

Dry-land agriculture investigations (p. 26, line 13).—There is a decrease in this item of \$9,000.

Western irrigation agriculture investigations (p. 26, line 24).—There is an apparent decrease in this item of \$21,200, but, as \$1,200 has been transferred to the statutory roll, there is an actual decrease of \$20,000.

Pomological investigations (p. 27, line 9).—There is an increase in this item of \$27,000. This amount will be used for the purchase of land for two stations in California for the conduct of viticultural work. A proviso authorizing this purchase has been added. The proviso in the present act setting aside \$20,000 for investigating and developing new grape industries has been eliminated.

Horticultural investigations (p. 28, line 6).—There is an apparent decrease in this item of \$1,400, but, as this amount has been transferred to the statutory roll, there is actually no change. The committee recommends that \$5,000 of this appropriation be used for the development of pure and desirable strains of sweet corn for commercial canning.

Nursery investigations (p. 28, line 13).—This is a new item. The necessity of restricting under the plant-quarantine act the importation of much of the nursery stock and other closely allied plant material hitherto brought into the United States in large quantities, in order to give adequate protection to horticultural and pomological interests against the introduction of dangerous insect pests and fungous diseases, together with the serious reduction during the past year or two in the usual supplies of stocks obtained under normal conditions from France and elsewhere, has served to emphasize the importance of developing domestic supplies of these materials.

Arlington farm (p. 28, line 19).—There is an apparent decrease in this item of \$1,400, but as that amount has been transferred to the statutory roll, there is actually no change.

Foreign seed and plant introduction (p. 29, line 1).—There is a decrease in this item of \$50,000. Inasmuch as the appropriation for the current fiscal year, however, includes \$50,000 for the purchase of land, erection of buildings, etc., in connection with the establishment of a plant inspection and detention station, which amount is omitted in this bill there is actually no change in the funds available for conducting the work under this item.

New and rare seed, forage-crop investigations (p. 29, line 8).—There is an apparent decrease in this item of \$9,780, but as \$2,700 has been transferred to the statutory roll, the actual decrease is \$7,080.

Administrative expenses (p. 29, line 17).—There is an apparent decrease in this item of \$3,060, but, as \$1,980 has been transferred to the statutory roll of the Secretary's office, the actual decrease is \$1,980.

PURCHASE AND DISTRIBUTION OF VALUABLE SEEDS.

(P. 29, line 24.)

There is an apparent decrease in this item of \$119,564, but as \$3,000 has been transferred to the statutory roll, the actual decrease is \$116,564.

FOREST SERVICE.

STATUTORY SALARIES.

(P. 32, line 16.)

The statutory roll of the Forest Service carries an actual increase of \$2,520, as indicated in detail in the following table:

New places:

1 forest supervisor.....	\$3, 240	
1 forest supervisor.....	2, 880	
8 forest supervisors, at \$2,500 each.....	20, 000	
16 forest supervisors, at \$2,380 each.....	38, 080	
44 forest supervisors, at \$2,180 each.....	95, 920	
60 forest supervisors, at \$1,980 each.....	118, 800	
5 forest supervisors, at \$1,780 each.....	8, 900	
1 deputy forest supervisor.....	1, 980	
4 deputy forest supervisors, at \$1,880 each.....	7, 520	
25 deputy forest supervisors, at \$1,780 each.....	44, 500	
28 deputy forest supervisors, at \$1,680 each.....	47, 040	
15 deputy forest supervisors, at \$1,580 each.....	23, 700	
11 forest rangers, at \$1,620 each.....	17, 820	
23 forest rangers, at \$1,520 each.....	34, 960	
78 forest rangers, at \$1,420 each.....	110, 760	
288 forest rangers, at \$1,320 each.....	380, 160	
590 forest rangers, at \$1,220 each.....	719, 800	
		\$1, 676, 060

1, 198 total new places.

Places dropped:

1 forest supervisor.....	3, 040	
1 forest supervisor.....	2, 700	
8 forest supervisors, at \$2,400 each.....	19, 200	
20 forest supervisors, at \$2,200 each.....	44, 000	
49 forest supervisors, at \$2,000 each.....	98, 000	
66 forest supervisors, at \$1,800 each.....	118, 800	
5 forest supervisors, at \$1,600 each.....	8, 000	
1 deputy forest supervisor.....	1, 800	
4 deputy forest supervisors, at \$1,700 each.....	6, 800	
28 deputy forest supervisors, at \$1,600 each.....	44, 800	
31 deputy forest supervisors, at \$1,500 each.....	46, 500	
18 deputy forest supervisors, at \$1,400 each.....	25, 200	
11 forest rangers, at \$1,500 each.....	16, 500	
23 forest rangers, at \$1,400 each.....	32, 200	
78 forest rangers, at \$1,300 each.....	101, 400	
288 forest rangers, at \$1,200 each.....	345, 600	
630 forest rangers, at \$1,100 each.....	693, 000	
100 forest guards, at \$1,100 each, for periods not exceeding six months in the aggregate.....	55, 000	
40 forest guards, at \$1,100 each, for periods not exceeding three months in the aggregate.....	11, 000	
		1, 673, 540
1, 402 total places dropped.		
Actual increase.....		2, 520

GENERAL EXPENSES.

Introductory paragraph (p. 35, line 1).—The limitation on the cost of any building erected on the national forests has been increased from \$800 to \$1,000.

The following new proviso has been inserted: "*Provided further, That hereafter the charge for grazing permits upon each of the national forests shall be not less than the appraised value of pasturage upon such national forests as determined by the Secretary of Agriculture from time to time, but at least every five years, beginning with the calendar year 1921, upon the basis of the commercial rates charged for pasturage upon lands of similar character, taking into account the advantages and disadvantages of the respective areas: And provided also, That the Secretary of Agriculture may allow free of charge the grazing of milch, work, or other animals used for domestic purposes not exceeding a total of ten head owned and in use by bona fide settlers residing in or near a national forest: or animals in actual use by prospectors, campers, and travelers: or saddle, pack, and work animals actually used in connection with permitted operations on the national forests.*"

The receipts from grazing during the fiscal year 1919 amounted to approximately \$2,600,000. It is estimated that the new grazing fees will practically double this sum. The testimony before the committee shows that the average rate for cattle grazing this year is \$1.20 a head for the entire year. Where the grazing is for only a few months the rate is one-tenth of the annual rate per month. The average period during which cattle have been on the forests this year is six months. The average amount collected is 72 cents per head. The sheep rate is 25 per cent of the cattle rate.

The average period the sheep have been on is about four months. The average fee collected from sheep grazing is about 12 cents per head.

Twenty-five per cent more is charged for horses than for cattle. The average rate collected for horses is about 90 cents per head.

The number of swine is very small.

The following table shows the grazing permits issued and number of stock grazed:

State.	Cattle, horses, and swine.				Sheep and goats.		
	Permits issued.	Number of stock grazed.			Permits issued.	Number of stock grazed.	
		Cattle.	Horses.	Swine.		Sheep.	Goats.
Alabama.....	2	50					
Arizona.....	1,570	360,011	6,509	637	160	364,853	6,694
Arkansas.....	452	4,591	80	494	15	49	231
California.....	3,021	208,683	7,019	3,324	551	606,526	13,200
Colorado.....	4,455	380,460	9,503		872	1,044,208	1,322
Florida.....	23	787		6			
Georgia.....	48	440	14	15	3	23	
Idaho.....	4,213	190,608	13,794		1,093	1,758,877	
Michigan.....					2	91	
Montana.....	2,865	170,674	16,524		521	635,224	154
Nebraska.....	54	12,757	713				
Nevada.....	502	77,432	4,320		109	390,753	
New Hampshire.....	15	158					
New Mexico.....	2,020	174,979	5,309	467	576	440,302	36,664
North Carolina.....	186	1,157	52	56	5	82	
Oklahoma.....	57	3,304	294				
Oregon.....	2,478	162,004	10,066	88	537	753,418	52
South Dakota.....	786	38,185	3,184		8	12,200	
Tennessee.....	47	431			6	75	
Utah.....	7,249	172,246	9,914	67	1,641	811,510	110
Virginia.....	273	2,614	15		1	6	
Washington.....	1,031	30,743	2,318		196	236,307	
Wyoming.....	1,181	143,204	3,611		329	680,670	
Total.....	32,528	2,135,527	93,251	5,154	6,624	7,935,174	60,790

Salaries of forest supervisors, rangers, and guards (p. 37, line 9).—This appears as a new item and carries an increase of \$125,000. Its purpose is to provide for the salaries of part-time employees heretofore carried on the statutory roll and for the employment of emergency labor incident to the administration of all the national forests.

**National forests and general administration* (p. 37, line 15).—There is a decrease in this item of \$439. Two forests have been increased, the Idaho National Forest by \$14,980 and the Payette National Forest by \$9,350, a total increase of \$24,330, due to the addition of the Thunder Mountain area in central Idaho, comprising 1,095,022.11 acres, in accordance with the provisions of Public No. 69. Six forests have been decreased, as follows:

Colville National Forest, Washington, by \$2,784.

Eldorado National Forest, California and Nevada, by \$2,250.

Kaniksu National Forest, Idaho and Washington, by \$6,943.

Monterey National Forest, California, \$3,547, having been consolidated with the Santa Barbara National Forest.

Sioux National Forest, South Dakota and Montana, by \$2,640, as it will be consolidated with the Custer National Forest during the present fiscal year.

Tusayan National Forest, Arizona, by \$4,085, a total decrease of \$22,149.

The Minam National Forest has been omitted, as it is proposed to consolidate this forest with the Whitman National Forest during the current fiscal year, the latter being increased correspondingly. In addition the appropriation for use in the District of Columbia has been decreased \$2,520.

Land classification and entry surveys (p. 45, line 12).—There is a decrease in this item of \$20,000. New language has been added permitting the survey of lands involved in exchanges authorized by law.

Supplies and equipment (p. 46, line 1).—There is a decrease in this item of \$11,100.

Range investigations.—This item, amounting to \$35,000, has been omitted.

Tree planting on national forests (p. 46, line 14).—There is a decrease in this item of \$25,000. The proviso authorizing the purchase of land for a forest nursery site on the Michigan National Forest has been omitted, as the site will be purchased during the current fiscal year.

Silvicultural investigations (p. 46, line 18).—There is a decrease in this item of \$43,728.

Reconnaissance of forest resources (p. 46, line 23).—There is an increase in this item of \$25,000. This amount will be required for the necessary estimating and appraising of the grazing resources of the national forests incident to the changed program provided in this bill.

Miscellaneous forest investigations (p. 47, line 3).—There is a decrease in this item of \$6,280.

Improvement of the national forests (p. 47, line 7).—There is a decrease in this item of \$50,000. The provisos prohibiting the use of funds from this appropriation for the payment of traveling expenses except on official business and for the preparation or publication of any newspaper or magazine article have been broadened to include all funds appropriated for the Forest Service. The word "hereafter" has also been inserted in each proviso. These provisions have been included in the appropriation acts since 1911, and it is now proposed

to make them permanent legislation so that it will not be necessary to repeat the language from year to year.

The following table shows the expenditures of the Forest Service during the fiscal year ending June 30, 1919:

Regular expenditures from annual appropriation:

Field expenses connected with the national forests.....	\$4, 801, 794. 67
General expenses connected with the Washington office.....	472, 403. 22
Research and recording of results.....	388, 023. 63
Total.....	5, 662, 221. 57
Emergency fire expenditures, derived in 1919 from the national security and defense fund.....	650, 000. 00
Cooperative contributions for work on national forests, including protection, improvements, and brush burning.....	522, 840. 05
Cooperation with States in fire protection outside the national forests.....	99, 921. 13
Cooperative contributions from Army and Navy for military research in wood.....	372, 233. 81
Construction of roads, from the 10 per cent fund (total available, \$350,533.75).....	279, 055. 63
Construction of roads, section 8, Federal-aid road act and Post Office appropriation act (total available, \$4,000,000).....	548, 764. 80
Amount paid to States representing 25 per cent of gross receipts.....	1, 069, 886. 88
Special apportionment for Arizona and New Mexico for school lands within national forests.....	78, 687. 32
Total expenditures.....	9, 285, 611. 19
Total receipts.....	4, 358, 414. 86
Deficit.....	4, 927, 196. 33

BUREAU OF CHEMISTRY.

STATUTORY SALARIES.

(P. 48, line 21.)

The statutory roll of the Bureau of Chemistry carries an apparent increase of \$14,520, but there is an actual decrease of \$1,300, as indicated in detail in the following table:

Transfer from lump funds of this bureau, which funds have been correspondingly reduced:

2 clerks, class 4, from food and drugs act.....	\$3, 600
1 clerk, from food and drugs act.....	1, 440
2 clerks, class 2, from food and drugs act and poultry and egg investigations.....	2, 800
1 machine operator, from food and drugs act, with change of title.....	1, 100
1 laboratory helper, from food and drugs act.....	1, 000
1 laboratory helper, from food and drugs act.....	840
1 laborer, from food and drugs act.....	780
2 laboratory helpers or laborers, at \$720 each, from color investigations and poultry and egg investigations.....	1, 440
1 sampler, from food and drugs act.....	1, 200
1 skilled laborer, from food and drugs act.....	900
1 messenger boy, from food and drugs act.....	720
	\$15, 820

Places dropped:

8 food and drug inspectors, at \$1,400 each..... \$11, 200

Transfer to statutory roll, Division of Publications:

1 clerk..... 900

12, 100

New places:

2 food and drug inspectors, at \$2,000 each..... 4, 000

2 food and drug inspectors, at \$1,800 each..... 3, 600

2 food and drug inspectors, at \$1,600 each..... 3, 200

10, 800

Actual decrease..... 1, 300

Apparent increase..... 14, 520

GENERAL EXPENSES.

Investigations in agricultural chemistry (p. 50, line 21).—This item is a combination of three existing subappropriations, (1) the application of chemistry to agriculture, (2) the biological investigation of food and drug products, and (3) the study and improvement of methods of utilizing by-products of citrus fruits. The amount carried by these three items for the current fiscal year aggregates \$70,400, so that the total sum provided for the fiscal year 1921 for these activities represents an actual decrease of \$4,000.

Poultry, egg, fish, and oyster investigations (p. 51, line 7).—This item is a combination of the present subappropriations for (1) poultry and egg investigations, and (2) fish and oyster investigations, the appropriations for which aggregate \$65,000. There is, therefore, an apparent decrease for this work of \$12,120, but, as \$2,120 has been transferred to the statutory roll, the actual decrease is \$10,000.

Color investigations (p. 51, line 13).—There is an apparent decrease in this item of \$31,740, but, as \$720 has been transferred to the statutory roll, the actual decrease is \$31,020.

Sirup investigations (p. 51, line 19).—There is an increase in this item of \$3,000, making the total appropriation for sirup investigations \$15,000. Of this amount the committee recommends that \$7,500 be set aside for the investigation of the sweet potato as a source of sirup production.

Enforcement of the food and drugs act (p. 51, line 23).—The item for investigating the character of the chemical and physical tests applied to American food products in foreign countries, carrying an appropriation of \$4,280, has been added to the item for the enforcement of the food and drugs act, the total appropriations for both items for the current year being \$624,501. There is an apparent decrease in the total appropriation for this work of \$45,140, but, as \$15,140 has been transferred to statutory rolls, the actual decrease is \$30,000.

Insecticide and fungicide investigations (p. 52, line 21).—There is a decrease of \$5,000 in this item.

Dehydration investigations (p. 53, line 1).—There is a decrease in this item of \$26,500.

Utilization of wool-scouring wastes (p. 53, line 6).—There is a decrease in this item of \$3,000.

ENFORCEMENT OF THE TEA-IMPORTATION ACT.

(P. 53, line 9.)

A new paragraph, carrying an appropriation of \$40,000, has been added, providing for the transfer from the Treasury Department to the Department of Agriculture of the powers and duties relating to the administration of an act entitled "*An act to prevent the importation of impure and unwholesome tea, approved March 2, 1897, as amended by the act of May 16, 1908.*" The logical place for this work is believed to be in the Department of Agriculture, and the proposed transfer has been approved by the heads of the departments concerned.

BUREAU OF SOILS.

STATUTORY SALARIES.

(P. 54, line 14.)

The statutory roll of the Bureau of Soils carries an apparent increase of \$3,900, but there is no actual increase, as indicated in the following table:

Transfers from lump funds of this bureau, which funds have been correspondingly reduced:

1 administrative assistant, from potash investigations.....	\$2,100
1 soil cartographer, from soil survey	1,800

Apparent increase..... 3,900

GENERAL EXPENSES.

Soil chemical investigations (p. 55, line 16).—There is a decrease in this item of \$2,500.

Investigation of fertilizer resources (p. 56, line 3).—There is an increase in this item of \$5,500, which is to be used for the development of phosphate fertilizer resources. Phosphate rock and phosphate fertilizer investigations have been confined largely during the past year to furnace treatment of phosphate rock. The process in course of development has for its object the production of highly concentrated phosphoric acid and phosphate fertilizers from low-grade raw materials. This process also gives promise of conserving vast quantities of phosphate materials now thrown away or lost in the present systems of mining and preparing the rock for the market. The preliminary work accomplished has been highly satisfactory, and a modified blast furnace of semicommercial size is in course of construction. It is anticipated that the results will furnish data from which it will be possible to determine the cost of producing phosphate fertilizer by the new process. From time to time it will be necessary to run this plant continuously for protracted periods, requiring two or three shifts of men, thereby necessitating additions to the present force. Repairs and changes must also be made as the work progresses.

Soil survey investigations (p. 56, line 6).—There is an apparent decrease in this item of \$19,300, but, as \$1,800 has been transferred to the statutory roll, the actual decrease is \$17,500.

Classification of agricultural lands (p. 56, line 12).—There is a decrease in this item of \$3,100.

Potash investigations (p. 56, line 16).—There is an apparent increase in this item of \$65,300, but, as \$2,100 has been transferred to the statutory roll, the actual increase is \$67,400. This amount is necessary in order to provide for new apparatus, additional supplies, acid for char extraction, and to meet the advance in the cost of labor in operating the experimental kelp potash plant at Summerland, Calif. It is estimated that \$101,000 will be realized from the sale of products at this plant for the current fiscal year. For the fiscal year 1921 it is believed that the receipts will more than cover all expenses, including the heavy overhead now entailed by a large and expensive force of chemists, engineers, and construction and repair men.

Following is an estimate of receipts for 1921 on the basis of 300 days of operation:

150 units of potash per day, at \$2 per unit.....	\$90,000
1 ton of carbon per day, at \$300 per ton.....	90,000
20 pounds of iodine per day, at \$4 per pound.....	24,000
1,600 pounds of sulphate of ammonia per day, at \$4 per hundredweight.....	19,000
Total.....	223,000

The results so far obtained indicate that the production of potash from kelp can be made a commercial success, but a number of questions need more complete investigation before the matter can be finally submitted to the public. This will take at least another year. It has been demonstrated that not less than 500,000 tons of raw kelp per annum are available in the vicinity of the department's plant at Summerland. It is assumed, therefore, that, if it is conclusively shown what profits are obtainable from the treatment of kelp by the process developed by the department, plants will be established sufficient in capacity to utilize the raw material available. The benefit to the public, therefore, from the successful outcome of these experiments seems to be assured and certainly justifies the appropriation recommended.

BUREAU OF ENTOMOLOGY.

STATUTORY SALARIES.

(P. 57, line 4.)

The statutory roll of the Bureau of Entomology carries an apparent increase of \$8,800, but there is an actual decrease of \$800, as indicated in detail in the following table:

Places dropped:	
7 entomological preparators, at \$600 each.....	\$4,200
New places:	
1 clerk class 4.....	\$1,800
1 clerk class 3.....	1,600
	3,400
Actual decrease.....	800
Transfers from lump funds of this bureau, which funds have been correspondingly reduced:	
2 clerks class 3, from truck crop in cts.....	\$3,200
2 clerks class 2, 1 from cereal and forage insects and 1 from preventing spread of moths.....	2,800
3 clerks class 1, 1 from bee culture, 1 from forest insects, and 1 from deciduous fruit insects.....	3,600
	9,600
Apparent increase.....	8,800

GENERAL EXPENSES.

Deciduous fruit insect investigations (p. 58, line 10).—There is an apparent increase in this item of \$72,720, but, as \$2,280 has been transferred to statutory rolls, the actual increase is \$75,000. This additional amount will be used for extending the work in the control of the Japanese beetle. The allotment for this work under the present appropriation is \$25,000, which with \$30,000 to be made

immediately available provides a total of \$55,000 for this purpose during the fiscal year 1920. The remaining \$45,000 of the increase, together with \$25,000 allotted for the control of the Japanese beetle from the present appropriation, will make \$70,000 available for combating this pest during the next fiscal year.

The Japanese beetle, introduced from Japan, has become in this country a serious enemy of many kinds of plants, including orchards, vineyards, truck crops, ornamental plants, various weeds, shade trees, etc. It is now established in Burlington and Camden Counties, N. J., and covers an area, according to present surveys, of about 15,000 acres. It is extremely important that everything feasible be done to prevent the further spread of this insect, and it is believed that money expended in this work will be a very profitable investment because it will protect other parts of the country from the ravages of the insect and obviate the necessity for considerable larger expenditures in connection with control measures over much greater areas.

Cereal and forage insect investigations (p. 58, line 15).—There is an apparent decrease in this item of \$1,400, but, as that amount has been transferred to the statutory roll, there is no actual change.

The committee recommends that \$20,000 of the amount carried by this item be used for the extension of alfalfa weevil investigations.

Control of the European cornborer.—This item has been omitted pending action by Congress on the deficiency estimate for \$500,000 covering this work which has recently been submitted by the department.

Southern field-crop insect investigations (p. 58, line 18).—There is an increase in this item of \$24,600, which is desired for extending the experiments for the control of the cotton-boll weevil. The possibility of practical control of the weevil in the Mississippi Delta region by the use of calcium arsenate in dust form has been demonstrated. In some instances the per acre yield of cotton has been doubled by the application of this insecticide. New types of both hand and power machines for applying the poison have also been developed. Further improvement in both poison and machines in the interest of economy is possible, and investigations to this end should be made.

Forest-insect investigations (p. 58, line 23).—There is an apparent decrease in this item of \$8,790, but, as \$1,200 has been transferred to the statutory roll, the actual decrease is \$7,590.

Truck-crop and stored-products insect investigations (p. 58, line 24).—There is an apparent decrease in this item of \$24,960, but, as \$3,200 has been transferred to the statutory roll, the actual decrease is \$21,760. The committee recommends that \$10,000 of the total appropriation be used for the investigations of the grain moth.

Bee culture investigations (p. 59, line 4).—There is an apparent decrease in this item of \$1,200, but, as this amount has been transferred to the statutory roll, there is actually no change.

Investigations of tropical and subtropical plant insects (p. 59, line 6).—The item is a combination of three existing appropriations, (1) investigations of insects affecting tropical and subtropical fruits, (2) investigations and control of the Mediterranean and other fruit flies, and (3) investigations of the camphor thrip. It involves a net decrease of \$2,000.

Miscellaneous insect investigations (p. 59, line 9).—There is a decrease in this item of \$10,000.

Administrative expenses (p. 59, line 14).—There is a decrease in this item of \$1,600.

PREVENTING SPREAD OF MOTHS.

(P. 59, line 18.)

There is an apparent decrease in this item of \$104,050, but, as \$1,400 has been transferred to the statutory roll, the actual decrease is \$102,650.

BUREAU OF BIOLOGICAL SURVEY.

STATUTORY SALARIES.

(P. 60, line 17.)

The statutory roll of the Bureau of Biological Survey carries an apparent increase of \$12,900, but there is no actual increase, as indicated in detail in the following table:

Transfers from lump funds of this bureau, which funds have been correspond-	
ingly reduced:	
2 clerks, class 4, 1 from food habits of birds and mammals and 1 from protection of migratory birds.....	\$3, 600
1 clerk, from game preservation.....	1, 500
3 clerks, class 2, 2 from food habits of birds and mammals and 1 from suppression of rabies.....	4, 200
3 clerks, class 1, 2 from food habits of birds and mammals and 1 from protection of migratory birds.....	3, 600
Apparent increase.....	12, 900

GENERAL EXPENSES.

Sullys Hill game preserve (p. 61, line 24).—The language of this paragraph has been amended by inserting the words "*and maintenance*" after the word "*improvement*" and by changing the word "*preserves*" to "*preserve*." There is only one game preserve in the Sullys Hill National Park. The present language limits the expenditure of funds under this paragraph to improvement work. At present the maintenance of the preserve is paid for from the appropriation for the general maintenance of reservations and is an additional charge on that fund. The paragraph carried in the appropriation act for 1918 provided for the "*maintenance and improvement*" of the Sullys Hill game preserve. It is believed to be a more satisfactory arrangement to have both the improvement and maintenance work provided for under one item. It is proposed to use from \$1,500 to \$2,000 of this appropriation for maintenance and the balance for improvement work.

Food habits of birds and mammals (p. 62, line 6).—There is an apparent decrease in this item of \$8,400, but, as that amount has been transferred to the statutory roll, there is actually no change. This paragraph has been revised in order to clarify the language.

Enforcement of the migratory-bird treaty act (p. 62, line 20).—There is an apparent decrease in this item of \$4,500, but, as that amount has been transferred to the statutory roll, there is actually no change.

Reindeer investigations and protection of land fur-bearing animals in Alaska (p. 63, line 10).—This is a new item and carries an appropriation of \$40,000. It provides for investigation, experiments, and demonstrations for the welfare, improvement, and increase in the reindeer industry in Alaska, in cooperation with the Bureau of Education; for the enforcement of section 956 of the Revised Statutes so far as it relates to the protection of land fur-bearing animals in Alaska; and for the transfer from the Department of Commerce to the Department of Agriculture of the powers and duties with respect to the protection of land fur-bearing animals, which transfer has the approval of the heads of the departments concerned. Of this appropriation \$25,000 is to be used for the reindeer and \$15,000 for the fur-bearing animals.

The first lot of reindeer in Alaska, numbering 171, was imported from Siberia in 1892. It is estimated that that number has increased to about 200,000 at the present time, and that through the proper development of the industry it may be increased to 10,000,000. The building up of the reindeer herds into larger animals producing more meat can be readily brought about by capturing wild caribou bulls in interior Alaska and using them to grade up the domestic animals. This it is proposed to do with a portion of the appropriation, and also to investigate several diseases reported to occur among reindeer, as it will readily be seen that a serious outbreak of some contagious disease might have disastrous effects on the industry, which has grown to be one of the chief sources of food in that northern country.

DIVISION OF ACCOUNTS AND DISBURSEMENTS.

STATUTORY SALARIES.

(P. 65, line 2.)

The statutory roll of the Division of Accounts and Disbursements carries an increase of \$3,600, as indicated in the following table:

New places:

3 clerks, class 1	\$3, 600
Actual increase.....	3, 600

DIVISION OF PUBLICATIONS.

STATUTORY SALARIES.

(P. 65, line 13.)

The statutory roll of the Division of Publications carries an increase of \$46,950, as indicated in detail in the following table:

New places:

1 artist and designer.....	\$2, 500
1 clerk, class 2	1, 400
2 messenger boys, at \$720 each	1, 440
2 messenger boys, at \$600 each	1, 200
1 laboratory aid.....	900
1 assistant in charge of motion-picture activities.....	3, 000
1 assistant photographer.....	960
1 lantern-slide colorist.....	900
18 clerks, at \$1,100 each.....	19, 800

New places—Continued.

40 clerks, at \$960 each.....	\$38,400
15 clerks, at \$900 each.....	13,500
1 folder.....	1,200
2 folders, at \$1,000 each.....	2,000
6 skilled laborers, at \$1,100 each.....	6,600
	<hr/>
	\$93,800

Places dropped:

6 clerks, at \$840 each.....	5,040
2 messenger boys, at \$480 each.....	960
2 messenger boys, at \$420 each.....	840
2 messenger boys, at \$360 each.....	720
1 laboratory aid.....	270
1 assistant photographer.....	900
1 lantern-slide colorist.....	840
18 clerks, at \$1,000 each.....	18,000
40 clerks, at \$900 each.....	36,000
15 clerks, at \$840 each.....	12,600
1 folder.....	1,000
2 folders, at \$900 each.....	1,800
6 skilled laborers, at \$1,000 each.....	6,000
	<hr/>
	84,970
	<hr/>
	8,830

Transfers from funds of other bureaus, which funds have been correspondingly reduced:

1 assistant in charge of exhibits, from statutory roll, Secretary's office, with change of title.....	\$3,000
1 assistant in charge of information, from statutory roll, Secretary's office.....	3,000
1 assistant in charge of motion-picture activities, from general administration, Forest Service.....	2,520
1 assistant in exhibits, from statutory roll, Secretary's office.....	2,000
1 assistant, from statutory roll, Secretary's office.....	2,000
1 assistant editor, from statutory roll, Secretary's office.....	2,000
3 assistant editors, at \$1,800 each, from statutory roll, Secretary's office.....	5,400
1 assistant editor, from statutory roll, Secretary's office.....	1,600
1 clerk, class 4, from statutory roll, Secretary's office, with change of title.....	1,800
4 clerks, class 2, from statutory roll, Secretary's office.....	5,600
4 clerks, class 1, from statutory roll, Secretary's office.....	4,800
2 clerks, at \$1,000 each, from statutory roll, Secretary's office.....	2,000
1 messenger or laborer, from statutory roll, Secretary's office, with change of title.....	600
1 messenger boy, from statutory roll, Secretary's office.....	600
2 messenger boys, at \$480 each, from statutory roll, Secretary's office.....	960
1 charwoman, from extra labor, Secretary's office.....	240
	<hr/>
	38,120
	<hr/>
Actual increase.....	46,950

GENERAL EXPENSES.

Labor-saving machinery (p. 67, line 1).—There is an increase in this item of \$1,000. This amount will be used for the purchase of additional equipment and supplies necessitated by the centralization in this division of the duplicating and automatic addressing work of the department as a whole and the consequent increase in such work by the Division of Publications.

Stationery and materials (p. 67, line 3).—There is an apparent increase in this item of \$1,500, but this merely provides for the transfer of that amount from the appropriation for "Miscellaneous

Expenses," which fund has been correspondingly reduced. It represents the amount that has been allotted from this appropriation to the Office of Information during the fiscal year 1920 for the purchase of paper and envelopes. With the merging of this office with the Division of Publications, it will simplify the accounting and add to the convenience of administering expenditures to have this transfer of funds made.

Photographic equipment (p. 67, line 5).—*The word hereafter has been added in the proviso so as to make the authority to loan, rent, or sell films permanent legislation.*

Miscellaneous expenses (p. 67, line 19).—There is an increase in this item of \$350, which amount is necessary to provide for miscellaneous expenses of the Office of Information heretofore paid from the appropriation "Miscellaneous Expenses," and to meet the general advance in the cost of all items coming within the scope of this appropriation.

Agricultural exhibits (p. 67, line 22).—This item has been transferred from the miscellaneous section of the bill and the amount decreased from \$100,000 to \$70,000. The exhibit work is a valuable means of bringing the latest developments in agriculture directly to the public, and many thousands of people are reached in this way who would not otherwise come in touch with the results of the department's work. Exhibits were shown at 57 fairs and expositions this year.

The clause regarding the National Dairy Show at Chicago, Ill., has been omitted, as this has reference to the show which took place during the fiscal year 1920, but an exhibit similar to the one this year will be provided next year. The provision fixing at \$5,000 the maximum expenditure that may be incurred in connection with any one fair also has been omitted, so as to leave the apportionment of funds discretionary with the department, to be determined by the requirements in each case.

The following language has also been added to the paragraph: "*in cooperation with other departments of the Government.*"

Emergency employments (p. 68, line 1).—There is an increase in this item of \$15,000. This amount will be required for the employment of emergency laborers and assistants in connection with the preparation of the agricultural exhibits mentioned in the preceding item.

BUREAU OF CROP ESTIMATES.

STATUTORY SALARIES.

(P. 68, line 6.)

The statutory roll of the Bureau of Crop Estimates carries an increase of \$240, as indicated in the following table:

Transfer from lump fund for extra labor, Secretary's office, which fund has been correspondingly reduced:

1 charwoman	\$240
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Actual increase	\$240
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GENERAL EXPENSES.

Introductory paragraph (p. 68, line 15).—The language of this paragraph has been amended by the addition of the words “*in cooperation with the States Relations Service.*” The committee believes that the county agents should be utilized in estimating crops.

Field investigations (p. 69, line 1).—There is a decrease in this item of \$48,486.

LIBRARY, DEPARTMENT OF AGRICULTURE.

STATUTORY SALARIES.

(P. 69, line 7.)

The statutory roll of the Library carries an apparent increase of \$720, but there is an actual decrease of \$480, as indicated in the following table:

Transfer from lump fund for general expenses, which fund has been correspond-	
ingly reduced:	
1 clerk, class 1.....	\$1,200
Place dropped:	
1 messenger boy.....	\$480
Actual decrease.....	480
Apparent increase.....	720

GENERAL EXPENSES.

(P. 69, line 14.)

There is no apparent change in this item, but, as \$1,200 has been transferred to the statutory roll, the actual increase is \$1,200.

MISCELLANEOUS EXPENSES.

(P. 69, line 23.)

There is an apparent decrease in this item of \$39,500. This decrease is due in part to the elimination of the provision of \$33,000 for repairs to the department's power plant, which repairs will be made during the current fiscal year, and the transfer to the Division of Publications of \$1,500 heretofore allotted from this appropriation for the purchase of envelopes and miscellaneous supplies in connection with the informational and exhibit work of the department, which it is proposed to merge with the Division of Publications.

RENT IN THE DISTRICT OF COLUMBIA.

(P. 70, line 16.)

There is an apparent increase in this item of \$64,666. This amount includes the transfer of the \$41,509 item for rent carried in the sundry civil act for the current fiscal year, and \$14,666 to cover items for rent that are now being paid from certain lump funds of the department. The committee has eliminated from these lump funds the

authority for the payment of rent in the District of Columbia, and its action in transferring to this item the amounts carried in the Agricultural act which are used for the payment of rent effects a consolidation in one paragraph of all items for the rental of additional office space in the District of Columbia for the next fiscal year which can not be furnished by the Public Buildings Commission in Government buildings.

STATES RELATIONS SERVICE.

STATUTORY SALARIES.

(Page 71, line 2.)

The statutory roll of the States Relations Service carries an apparent increase of \$32,000, but there is no actual increase, as indicated in detail in the following table:

Transfers from lump funds of this bureau, which funds have been correspondingly reduced:

1 clerk, class 4, from farmers' cooperative demonstrations in North and West.....	\$1,800
1 executive clerk, from home economics.....	1,740
4 clerks, class 2, from farmers' cooperative demonstrations in North and West.....	5,600
16 clerks, class 1, 4 from colleges and stations and 12 from farmers' cooperative demonstrations in North and West.....	19,200
1 clerk or artist-draftsman, from farmers' cooperative demonstrations in North and West.....	1,200
1 clerk or machine operator, from farmers' cooperative demonstrations in South.....	1,200
24 clerks, at \$1,100 each, 3 from colleges and stations, 10 from farmers' cooperative demonstrations in North and West, 8 from farmers' cooperative demonstrations in South, 2 from farmers' institutes and agricultural schools, and 1 from general administrative expenses.....	26,400
1 messenger boy, from farmers' institutes and agricultural schools.....	600
5 charwomen, at \$240 each, 2 from farmers' cooperative demonstrations in North and West, 1 from farmers' cooperative demonstrations in South, 1 from farmers' institutes and agricultural schools, and 1 from home economics.....	1,200
	<hr/> \$58,940

Places dropped:

25 clerks, at \$900 each.....	22,500
1 clerk or lantern-slide colorist.....	900
1 clerk.....	720
1 messenger or laborer.....	600
2 messengers or laborers, at \$480 each.....	960
1 messenger boy.....	300
3 messenger boys, at \$300 each.....	900
	<hr/>

Actual decrease..... 26,940

Apparent increase..... 32,000

GENERAL EXPENSES.

Administration of the Hatch, Adams, and agricultural extension acts (p. 72, line 11).—There is an apparent decrease in this item of \$8,100, but as that amount has been transferred to the statutory roll, there is actually no change.

Farmers' cooperative demonstrations outside of the cotton belt (p. 73, line 9).—There is an apparent decrease in this item of \$35,560, but

as that amount has been transferred to statutory rolls, there is actually no change.

'Farmers' cooperative demonstrations in the South (p. 73, line 13).—There is an apparent decrease in this item of \$10,240, but as that amount has been transferred to the statutory roll, there is no actual change.

Supplementary Smith-Lever appropriation (p. 73, line 24).—There is no change in the amount of this item. However, the following table shows that there will be available during the next fiscal year under the Smith-Lever act \$500,000 more than during the current year:

Statement showing the Federal appropriations for extension work, also funds required to be offset by States, for the fiscal year 1921.

Federal funds:

Smith-Lever Act (\$500,000 increase over fiscal year 1920)	\$3,580,000
Appropriation carried in Agricultural act to supplement Smith-Lever funds	1,500,000
Farmers' cooperative demonstration work (Agricultural act) outside of the cotton belt and in the South	\$1,350,520
Offset required of States	4,600,000
Total	\$11,030,520

The following table shows the allotment of Federal and State extension funds by lines of work, 1919–20:

Project.	Farmers' cooperative demonstration work.	Smith-Lever, 1919-20.					Miscellaneous funds not used as offset to Federal funds.	Total.
		Regular.		Supplementary.		Total.		
		Federal.	State.	Federal.	State.			
County agent	\$490,462	\$1,079,785	\$1,041,566	\$901,232	\$1,064,943	\$4,087,526	\$2,751,608	\$7,429,596
Home demonstration	279,918	521,024	441,413	341,714	285,393	1,595,544	696,263	2,571,725
Club work	130,844	186,774	153,147	121,682	34,955	496,558	232,222	859,624
Specialists	36,000	749,047	625,537	40,272	28,336	1,443,192	792,400	2,271,592
Publications		89,939	73,023	2,000	2,000	166,962	40,095	207,057
Administration	15,601	453,431	262,314	11,727	.....	727,472	171,277	914,350
Total	1,052,825	3,080,000	2,600,000	1,418,627	1,418,627	8,517,254	4,683,865	14,253,944
Washington supervision	99,340							
Field service	209,155							
Envelopes	35,000							
Total farmers' cooperative demonstration work	1,396,320							

¹ This includes \$751,280 for work in 33 Northern and Western States and \$645,040 for work in 15 Southern States.

Farmers' institutes and agricultural schools (p. 74, line 14).—There is an apparent decrease in this item of \$4,240, but, as \$3,040 has been transferred to the statutory roll, there is actually a decrease of \$1,200.

¹ States not required to offset \$480,000 of this amount.

² Requirement for offset of this amount by States left discretionary with the Secretary of Agriculture.

³ Exclusive of amounts contributed by States in addition to Smith-Lever offsets, and funds contributed by counties, local organizations, and miscellaneous sources. As county agents are now located in 2,000 counties, the average amount allotted to each county from this fund for extension work is \$5.55.

Insular experiment stations (p. 75, line 1).—There is a decrease in this item of \$10,000, which is accounted for by a reduction in the appropriation for the Guam experiment station. Of the \$75,000 for the Alaska experiment stations, \$11,800 has been made immediately available for the erection of necessary *buildings* and the purchase of breeding live stock, in connection with the stock breeding experiments on the island of Kodiak and at the Matanuska station. This is an increase over the amount provided for the current fiscal year of \$1,800.

The proviso granting leaves of absence to employees on duty at insular stations has been eliminated as it is permanent legislation.

Home economics investigations (p. 75, line 21).—There is an apparent decrease in this item of \$1,980, but, as that amount has been transferred to the statutory roll, there is actually no change.

Administrative expenses (p. 76, line 5).—There is an apparent decrease in this item of \$1,580, but, as \$1,100 has been transferred to the statutory roll, there is actually a decrease of \$480.

BUREAU OF PUBLIC ROADS.

STATUTORY SALARIES.

(P. 76, line 14.)

The statutory roll of the Bureau of Public Roads carries an apparent increase of \$4,260, but there is an actual decrease of \$2,500, as indicated in detail in the following table:

Transfers from lump funds of this bureau, which funds have been correspondingly reduced:

1 clerk, class 3, from road building and maintenance.....	\$1,600
1 clerk, from road building and maintenance.....	1,500
1 mechanic, from road building and maintenance.....	2,100
1 skilled laborer or mechanic, from road management.....	840
1 telephone operator, from road building and maintenance.....	720

6,760

Place dropped:

1 editor.....	\$2,500
Actual decrease.....	2,500

Apparent increase..... 4,260

GENERAL EXPENSES

Road-management investigations (p. 78, line 3).—There is an apparent decrease of \$2,040 in this item, but as \$840 has been transferred to statutory rolls there is actually a decrease of \$1,200.

Road-building and maintenance investigations (p. 78, line 6).—There is an apparent decrease in this item of \$35,920, but as \$5,920 has been transferred to the statutory roll there is an actual decrease of \$30,000, which has been added to the item for road-material investigations.

Road-material investigations (p. 78, line 10).—There is an increase in this item of \$30,000. This amount has been deducted from the item for road building and maintenance. In the suddenly expanding program of new road construction the highway engineer is facing the problem of road design without adequate data from which to form definite conclusions as to the types, the strength, or the

materials which can be most economically used. Motor-driven traffic has now become the chief factor in determining the services that will be required of our highways, and the rapidity with which this character of traffic has developed has not permitted the gradual evolution of road types, as was the case with the prevailing road types developed to take care of the animal-drawn traffic. With the suddenly revolutionized methods of highway transportation, road surfaces which were adequate under former demands are failing to meet the greatly increased numbers and weights of motor vehicles. At the same time the cost of highway construction has materially increased. Highway construction, it is apparent, will be one of the greatest public activities which has ever been undertaken, and appropriations running into the hundreds of millions of dollars have already been made to finance that large program. The increased appropriation requested under this item will provide for conducting a comprehensive series of laboratory and field tests designed to give information which will permit of the selection of the right type and right design of road to economically serve the purpose for which intended. It is proposed to conduct a large number of such experiments, in cooperation with the various State highway departments. A part of the increase will also be needed to provide additional testing equipment and employ additional assistance to take care of the increased volume of routine testing and research work in the Washington laboratory. The language in the paragraph has been amended so as to indicate more clearly the character of work contemplated.

Field experiments.—The item of \$60,000 for conducting field experiments and building experimental roads has been omitted.

Farm irrigation (p. 78, line 15).—There is a decrease in this item of \$20,000.

Farm drainage (p. 79, line 4).—There is a decrease in this item of \$20,000.

BUREAU OF MARKETS.

STATUTORY SALARIES.

(P. 80, line 9.)

The statutory roll of the Bureau of Markets carries an apparent increase of \$43,320, but there is an actual decrease of \$20,800, as indicated in detail in the following table:

Transfers from lump funds of this bureau, which funds have been correspondingly reduced:

1 executive clerk, \$2,000, from market inspection of perishable foods.....	\$2,000
1 clerk, from cotton futures act.....	2,000
1 clerk, class 3, from collecting and distributing market information.....	1,600
25 clerks, at \$1,100 each, 8 from collecting and distributing market information, 1 from market reports on live stock and meats, 2 from dairy and poultry products, 3 from grain, hay, feed, and seeds, 1 from food supply investigations, 1 from market inspection of perishable foods, 1 from cotton testing, 1 from State cooperation in marketing, 1 from grain standardization, 2 from cotton futures act, and 4 from grain standards act.....	27,500
7 clerks, at \$1,000 each, 3 from marketing and distributing farm products, 2 from dairy and poultry products, 1 from food supply investigations, and 1 from grain standards act.....	7,000

Transfers from lump funds of this bureau, etc.—Continued.

1 custodian, from grain standardization.....	\$1,200	
1 draftsman, from grain standardization.....	1,000	
10 machine operators, at \$1,000 each, 1 from marketing and distributing farm products, 1 from collecting and distributing market information, and 8 from market reports on live stock and meats.....	10,000	
7 machine operators, at \$900 each, 3 from marketing and distributing farm products, 2 from collecting and distributing market information, 1 from dairy and poultry products, and 1 from grain standards act.....	6,300	
1 skilled laborer, from grain, hay, feed, and seeds.....	900	
3 messengers, at \$900 each, 1 from marketing and distributing farm products and 2 from collecting and distributing market information.....	2,700	
1 messenger, from dairy and poultry products.....	720	
2 messenger boys, at \$600 each from market reports on live stock and meats, and dairy and poultry products.....	1,200	
		<hr/> \$64 120

Places dropped:

2 clerks, class 2.....	2,800	
13 clerks, class 1.....	15,600	
2 clerks, at \$720 each.....	1,440	
1 messenger.....	480	
1 messenger boy.....	480	
		<hr/> 20,800
Actual decrease.....		20,800
Apparent increase.....		<hr/> 43,320

GENERAL EXPENSES.

Marketing and distributing farm products (p. 82, line 7).—There is an apparent decrease in this item of \$41,540, but, as \$7,600 has been transferred to the statutory roll, there is an actual decrease of \$33,940. A proviso has been added setting aside \$25,000 of this appropriation for the development of markets in the South American countries for agricultural products of the United States, chiefly live stock, by sending representatives to South America.

Regulation of stockyards.—This item, carrying an appropriation of \$75,000, has been omitted.

Market news service on live stock and meats (p. 82, line 18).—There is an apparent decrease in this item of \$16,000, but, as \$9,700 has been transferred to the statutory roll, there is actually a decrease of \$6,300.

Market news services (p. 83, line 11).—This item represents a combination of the items for market news service on (1) fruits and vegetables, (2) peanuts, (3) dairy and poultry products, and (4) grain, hay, feeds, and seeds, aggregating \$392,600 for the current year. The apparent decrease is \$78,000, but, as \$25,620 has been transferred to the statutory roll, there is an actual decrease of \$52,380.

Food supply investigations (p. 83, line 17).—There is an apparent decrease in this item of \$3,180, but, as that amount has been transferred to statutory rolls, there is actually no change.

Food products inspection service (p. 83, line 24).—There is an apparent decrease in this item of \$8,300, but, as \$3,100 has been transferred to the statutory roll, there is an actual decrease of \$5,200.

Cotton standardization investigations (p. 84, line 12).—There is an apparent decrease in this item of \$5,920, but, as \$1,100 has been transferred to the statutory roll, the actual decrease is \$4,820.

Rural cooperation.—This item, carrying an appropriation of \$15,780 for studies of cooperation among farmers in the United States, has been omitted.

State cooperation in marketing work (p. 84, line 21).—There is an apparent decrease in this item of \$37,750, but, as \$1,100 has been transferred to the statutory roll, the actual decrease is \$36,650.

Grain standardization investigations (p. 85, line 1).—There is an apparent decrease in this item of \$14,900, but as \$3,300 has been transferred to the statutory roll there is an actual decrease of \$11,600.

Enforcement of the United States cotton-futures act (p. 85, line 16).—There is an apparent increase in this item of \$10,831, but as \$5,280 has been transferred to statutory rolls, and \$7,689 to the item for rent in the District of Columbia, the actual increase is \$23,800. In addition, salaries aggregating \$6,100 have been transferred from the appropriation for the wheat guaranty act for work in connection with the classification of cotton, making a total increase of \$29,900. Inasmuch as the wheat price guaranty act of March 4, 1919, contained amendments to the cotton-futures act, to carry out the purposes of which an allotment of \$100,000 was set aside by the President from the funds provided for administration of the wheat price guaranty act, the amount for the enforcement of the cotton-futures act during 1921 represents an actual decrease of \$70,100 in the funds available for this work.

The language of this paragraph has been amended by inserting the words "*as amended March 4, 1919,*" after the words "*United States cotton-futures act,*" in order to show specifically that the amendments contained in the wheat price guaranty act of March 4, 1919, are to be included among the provisions to be enforced under this paragraph.

A provision has been added to recognize and make permanent legislation the amendments to section 6 of the act of March 4, 1919.

Enforcement of the United States grain standards act (p. 86, line 4).—There is an apparent decrease in this item of \$59,977, but as \$6,300 has been transferred to the statutory roll and \$6,377 has been transferred to the item for rent in the District of Columbia the actual decrease is \$47,300.

A proviso has been added amending section 6 of the grain standards act by striking out of the last sentence the words "*made after the parties in interest have had opportunity to be heard.*"

Administration of the warehouse act (p. 86, line 14).—There is an apparent decrease in this item of \$10,600, but as \$600 has been transferred to the item for rent in the District of Columbia the actual decrease is \$10,000.

Completion of wool work (p. 86, line 21).—This item has been decreased from \$35,000 to \$15,000.

ENFORCEMENT OF THE INSECTICIDE ACT.

STATUTORY SALARIES.

(P. 87, line 5.)

There is an apparent increase in the statutory roll of \$1,200, but no actual increase, as indicated in the following table:

Transfer from lump fund for general expenses, which fund has been correspondingly reduced:	
1 clerk, class 1	\$1,200
Apparent increase	1,200
164315—20—90	

GENERAL EXPENSES.

Enforcement of the insecticide act (p. 87, line 21).—There is an apparent decrease in this item of \$9,790, but, as \$1,200 has been transferred to the statutory roll, the actual decrease is \$8,590.

FEDERAL HORTICULTURAL BOARD.

STATUTORY SALARIES.

(P. 88, line 5.)

The statutory roll of the Federal Horticultural Board carries an apparent increase of \$2,000, but there is no actual increase, as indicated in the following table:

Transfer from lump fund for enforcement of plant quarantine act, which fund has been correspondingly reduced:	
1 executive clerk.....	\$2,000
Apparent increase.....	\$2,000

GENERAL EXPENSES.

Enforcement of the plant-quarantine act (p. 88, line 18).—There is an apparent increase in this item of \$52,750, but, as \$2,000 has been transferred to the statutory roll, the actual increase is \$54,750.

It is proposed to develop a port inspection service for the purpose of cooperating with officials of the Customs Service and with State officials in the enforcement of quarantines established under the provisions of the plant-quarantine act. The department is now enforcing 14 quarantines prohibiting or restricting the entry of foreign plants, fruits, and plant products. It is also enforcing seven orders regulating and restricting the entry of additional foreign products. These quarantines and orders are being enforced in cooperation with the Customs Service, but the burden on that service has grown to such an extent that it has been necessary for the Department of Agriculture to take over the actual enforcement of these quarantines at the principal ports of entry, as far as possible, through the service now maintained to prevent the entry into the United States of the pink bollworm of cotton through importations from Egypt, Mexico, and other foreign countries. California and Florida are the only States which have established adequate port inspection services. The department has been able to collaborate with and secure the aid of these State services in the enforcement of the Federal quarantines and restrictive orders now in force. The value of these State services has been fully demonstrated; their work affords a large measure of protection to the whole country. It has become apparent that the port inspection service of this department, already undertaken in a limited way, should be greatly strengthened and enlarged. Without such service new plant enemies may constantly be brought into the United States, thus practically nullifying the protection of existing quarantines.

Eradication of the potato wart (p. 89, line 1).—There is a decrease in this item of \$14,700.

Plant quarantine in the District of Columbia (p. 89, line 14).—A new provision has been added amending the plant quarantine act approved August 20, 1912, by adding at the end thereof the following section:

That the plant quarantine act approved August 20, 1912 (37th Stat., p. 315), be, and is hereby, amended by adding at the end thereof the following section:

Sec. 15. That in order further to control and eradicate and to prevent the dissemination of dangerous plant diseases and insect infections and infestations no plant or plant products for or capable of propagation, including nursery stock, hereinafter referred to as plants and plant products, shall be moved or allowed to be moved, shipped, transported, or carried by any means whatever into or out of the District of Columbia, except in compliance with such rules and regulations as shall be prescribed by the Secretary of Agriculture as hereinafter provided. Whenever the Secretary of Agriculture, after investigation, shall determine that any plants and plant products in the District of Columbia are infected or infested with insect pests and diseases and that any place, articles, and substances used or connected therewith are so infested or infected, written notice thereof shall be given by him to the owner or person in possession or control thereof, and such owner or person shall forthwith control or eradicate and prevent the dissemination of such insect pest or disease and shall remove, cut, or destroy such infested and infected plants, plant products, and articles and substances used or connected therewith, which are hereby declared to be nuisances, within the time and in the manner required in said notice or by the rules and regulations of the Secretary of Agriculture. Whenever such owner or person can not be found, or shall fail, neglect, or refuse to comply with the foregoing provisions of this section, the Secretary of Agriculture is hereby authorized and required to control and eradicate and prevent dissemination of such insect pest or disease and to remove, cut, or destroy infested or infected plants and plant products and articles and substances used or connected therewith, and the United States shall have an action of debt against such owner or persons for expenses incurred by the Secretary of Agriculture in that behalf. Employees of the Federal Horticultural Board are hereby authorized and required to inspect places, plants, and plant products and articles and substances used or connected therewith whenever the Secretary of Agriculture shall determine that such inspections are necessary for the purposes of this section. For the purpose of carrying out the provisions and requirements of this section and of the rules and regulations of the Secretary of Agriculture made hereunder, and the notices given pursuant thereto, employees of the Federal Horticultural Board shall have power with a warrant to enter into or upon any place and open any bundle, package, or other container of plants or plant products whenever they shall have cause to believe that infections or infestations of plant pests and diseases exist therein or thereon, and when such infections or infestations are found to exist, after notice by the Secretary of Agriculture to the owner or person in possession or control thereof and an opportunity by said owner or person to be heard, to destroy the infected or infested plants or plant products contained therein. The police court or the municipal court of the District of Columbia shall have power, upon information supported by oath or affirmation showing probable cause for believing that there exists in any place, bundle, package, or other container in the District of Columbia any plant or plant product which is infected or infested with plant pests or disease, to issue warrants for the search for and seizure of all such plants and plant products. It shall be the duty of the Secretary of Agriculture, and he is hereby required, from time to time, to make and promulgate such rules and regulations as shall be necessary to carry out the purposes of this section, and any person who shall move or allow to be moved, or shall ship, transport, or carry, by any means whatever, any plant or plant products from or into the District of Columbia, except in compliance with the rules and regulations prescribed under this section, shall be punished, as is provided in section 10 of this act."

This amendment to the plant quarantine act, which received the approval of both the House and Senate Committees on Agriculture during consideration of the estimates for 1920, but failed of enactment, confers on the Secretary of Agriculture authority to regulate the movement of plants and plant products, including nursery stock, from or into the District of Columbia, and power to control injurious plant diseases and insect pests within the District. There is at present no law under which the movement of diseased and insect-infested nursery stock and other plants and plant products into the District of Columbia from surrounding or other States or from the District of

Columbia into surrounding or other States can be adequately controlled; nor is there authority for control and extermination within the District of Columbia of plant pests and diseases. The powers requested are such as are exercised in practically all the States and Territories of the United States and are necessary for the alignment of the District of Columbia with plant pest control exercised elsewhere.

The immediate need of this legislation is evidenced by the fact that the oriental fruit moth, which threatens seriously to affect the fruit industry of the United States, gained entrance in large part through importations of ornamental stock into the District of Columbia, and there exist now within the District thousands of peach, cherry, plum, apple, and other trees infested with this insect, affording breeding sources from which the moth has spread to the adjacent States of Maryland and Virginia.

MISCELLANEOUS.

DEMONSTRATIONS ON RECLAMATION PROJECTS.

(P. 92, line 18.)

There is an apparent decrease in this item of \$18,600, but, as \$1,600 has been transferred to the statutory roll of the Bureau of Plant Industry, the actual decrease is \$17,000.

FIGHTING AND PREVENTING FOREST FIRES.

(P. 93, line 1.)

This is a new item. It carries an appropriation of \$250,000, but includes \$150,000 now provided in the item for fighting forest fires under general expenses of the Forest Service, so that the actual increase in the fund for fighting forest fires is only \$100,000. It was the committee's thought that this appropriation would be treated as an insurance fund, to be expended only in case of actual necessity. For several years past the appropriation provided for fighting forest fires has been insufficient and annually the department has had to submit estimates for deficiency appropriations.

COOPERATIVE FIRE PROTECTION OF FORESTED WATERSHEDS OF NAVIGABLE STREAMS.

(P. 93, line 5.)

There is a decrease in this item of \$25,000.

EXPERIMENTS AND DEMONSTRATIONS IN LIVE-STOCK PRODUCTION IN THE CANE-SUGAR AND COTTON DISTRICTS OF THE UNITED STATES.

(P. 93, line 15.)

There is a decrease in this item of \$13,500. The words "*the erection of barns and other necessary buildings*" have also been omitted.

EXPERIMENTS IN DAIRYING AND LIVE-STOCK PRODUCTION IN SEMI-ARID AND IRRIGATED DISTRICTS OF THE WESTERN UNITED STATES.

(P. 94, line 1.)

There is a decrease in this item of \$10,000. Authority for "*the erection of barns and other necessary buildings*" has been eliminated from this item.

PASSENGER-CARRYING VEHICLES.

(P. 94, line 11.)

This paragraph carries no appropriation. The amount authorized to be expended for the purchase, maintenance, repair, and operation of passenger-carrying vehicles outside of the District of Columbia has been reduced by \$15,000.

The committee has also eliminated the word "*purchase*" from this item, as well as the proviso permitting the expenditure of \$15,000 from lump-fund appropriations of the department for the purchase of passenger-carrying vehicles.

EXCHANGE OF PARTS OF VEHICLES.

(P. 94, line 21.)

The following new paragraph has been inserted:

That hereafter the Secretary of Agriculture may exchange used parts, accessories, tires, or equipment of motor-propelled and horse-drawn vehicles in part payment for new parts, accessories, tires, or equipment of such vehicles authorized to be purchased by him, to be used for the same purposes as those proposed to be exchanged.

This legislation is recommended in order to provide authority for the exchange of parts of automobiles in part payment for similar new parts for their replacement, with a view to place the operation of automobiles by the department on an economical and businesslike basis. Tires, for example, often are sold upon a guaranteed mileage basis, the manufacturer agreeing, in case they prove defective and fail to make the guaranteed mileage on account of imperfection in material or workmanship, to replace them at a figure calculated to compensate for the lack of service rendered by them.

ERADICATION OF THE FOOT-AND-MOUTH AND OTHER CONTAGIOUS DISEASES OF ANIMALS.

(P. 95, line 3.)

The amount of this item has been reduced from \$1,000,000 to \$50,000. An annual appropriation of \$1,000,000 has been provided in the agricultural appropriation act for several years past. This has been regarded merely as an insurance against the foot-and-mouth disease, and a very small amount of the fund has been expended annually. The language of the paragraph has been amended so as to continue the availability of the unexpended balance of the \$2,500,000 included in the appropriation act for the fiscal year 1916. The balance remaining under that appropriation is approximately \$514,000, which, it is believed, will amply provide for possible outbreaks of the disease during the next fiscal year.

ERADICATION OF PINK BOLLWORM.

(P. 96, line 16.)

There is an apparent decrease in this item of \$307,240, but as \$9,840 has been transferred to statutory rolls, the actual decrease is \$297,400.

MILEAGE RATES FOR MOTOR VEHICLES.

(P. 98, line 8.)

The paragraph fixing maximum mileage rates for motor vehicles has been amended so as to make its provisions applicable to the next fiscal year.

INVESTIGATIONS AND PREVENTION OF PLANT-DUST EXPLOSIONS AND FIRES.

(P. 98, line 15.)

This is a new item and provides an appropriation of \$25,000.

Plant-dust explosions and fires in grain mills and elevators, thrashing machines, and cotton gins have resulted in the loss of scores of human lives as well as enormous property losses. The campaign conducted cooperatively by the Bureau of Chemistry, Bureau of Markets, and Bureau of Plant Industry under the funds provided in the food-production act last year were of great benefit to the agricultural, grain, and milling industries of the country in reducing these losses. It also brought out many problems which previous investigations did not solve, and indicated very clearly the importance of making provision for the continuation of the investigational work upon which the campaign was based. Explosions and fires in three types of plants were dealt with, namely, mills and elevators, thrashing machines, and cotton gins. As the funds provided for the work under the food-production act were withdrawn June 30, 1919, it was necessary to discontinue the demonstration work on that date and to take steps to terminate the appointment of the men engaged upon it. Because of the savings that had been effected, the United States Grain Corporation indicated its desire to carry on the work, in so far as it related to grain elevators and flour mills, and reemployed some of the men formerly engaged thereon, and it is now cooperating with this department in so far as the very limited funds of the Bureau of Chemistry will permit.

This work is conducted chiefly as an educational campaign of prevention, and it is impossible, with existing funds and facilities, to undertake in an adequate manner the essential investigational work which was suspended at the outbreak of the war. The activities of the department in connection with the prevention of plant-dust explosions and fires involve the close and effective cooperation of the Bureau of Chemistry, Bureau of Markets, and Bureau of Plant Industry. Each of the bureaus is equipped to deal with a particular phase of the problem, and there is a thorough understanding among them regarding the matter.

ACCUMULATIVE LEAVE OF EMPLOYEES AT INSULAR STATIONS.

(P. 99, line 3.)

The following new item has been inserted:

Hereafter, if any employee of the Department of Agriculture assigned to permanent duty in Alaska, Hawaii, Porto Rico, Guam, and the Virgin Islands shall elect to postpone taking any or all of the annual leave to which he may be entitled, he may, in the discretion of the Secretary of Agriculture, subject to the interests of the public service, be allowed to take at one time in any calendar year unused annual leave which may have accumulated within not to exceed four calendar years immediately preceding and be paid at the rates prevailing during the year such leave has accumulated.

This legislation is recommended in order to make the accumulative leave privilege applicable to all employees of the department assigned to permanent duty in the insular possessions and in Alaska. The existing law applies only to the employees of the States Relations Service.

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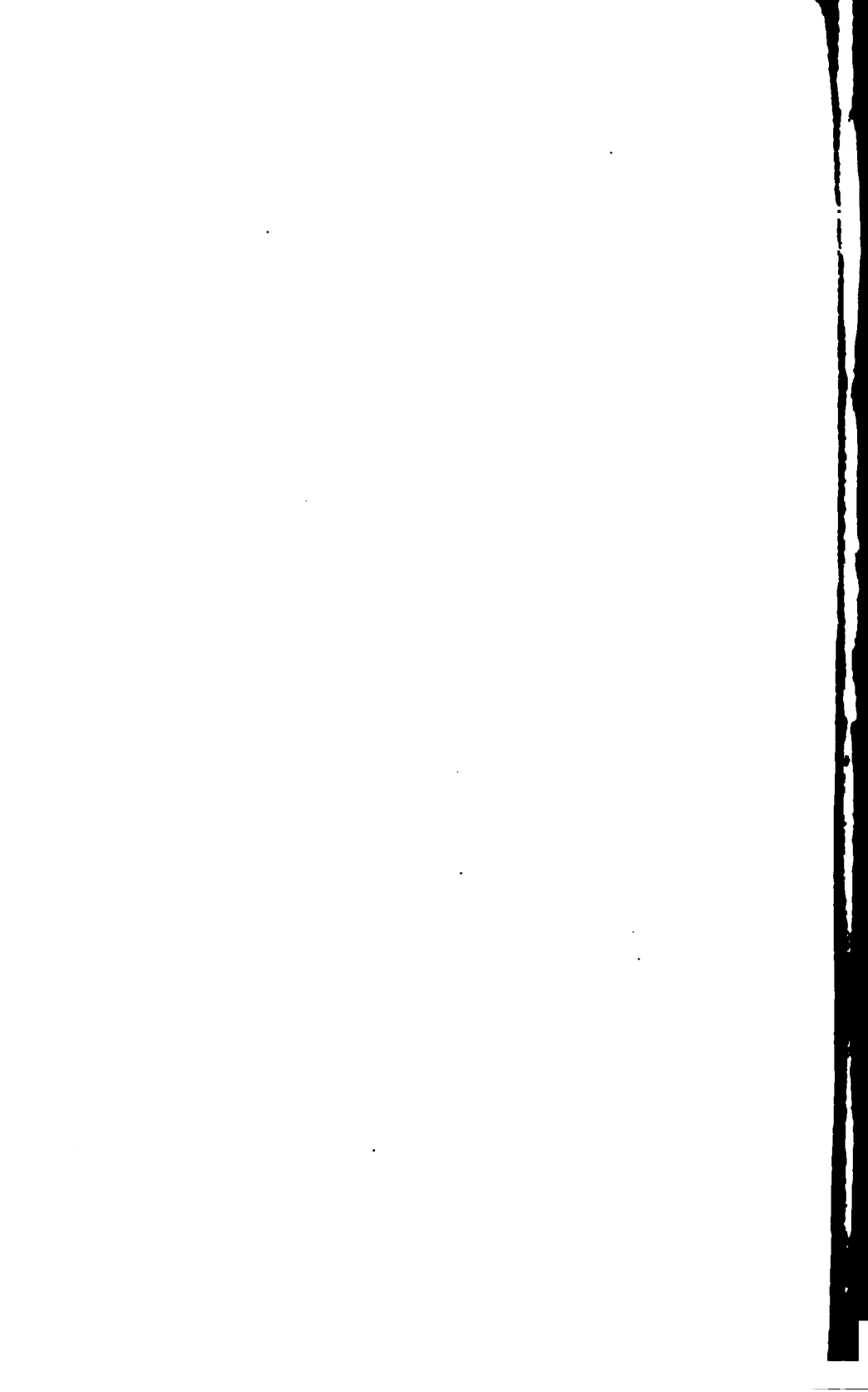
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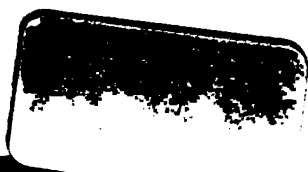
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